Sept. 25, 1928. 1,685,668

J. G. DAVIS

FOLDABLE HORSE FOR TRESTLE BEAMS

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Fig. 1.

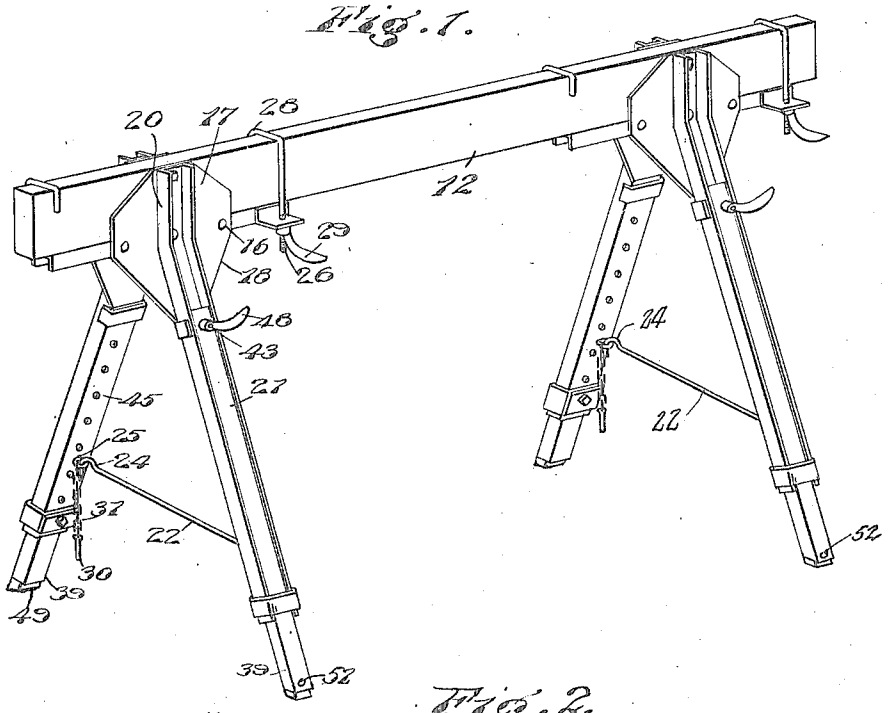


Fig. 2.

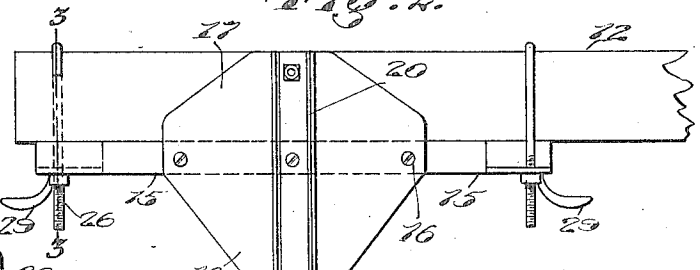


Fig. 5.

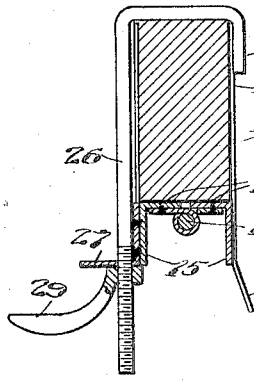
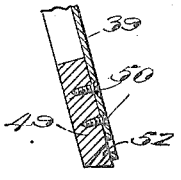


Fig. 4.



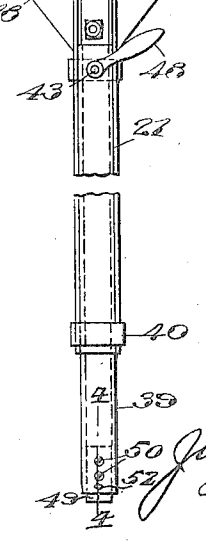


Fig. 3.

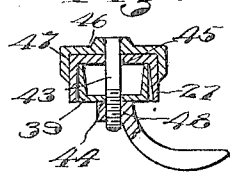
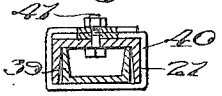


Fig. 6.



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Fig. 7.

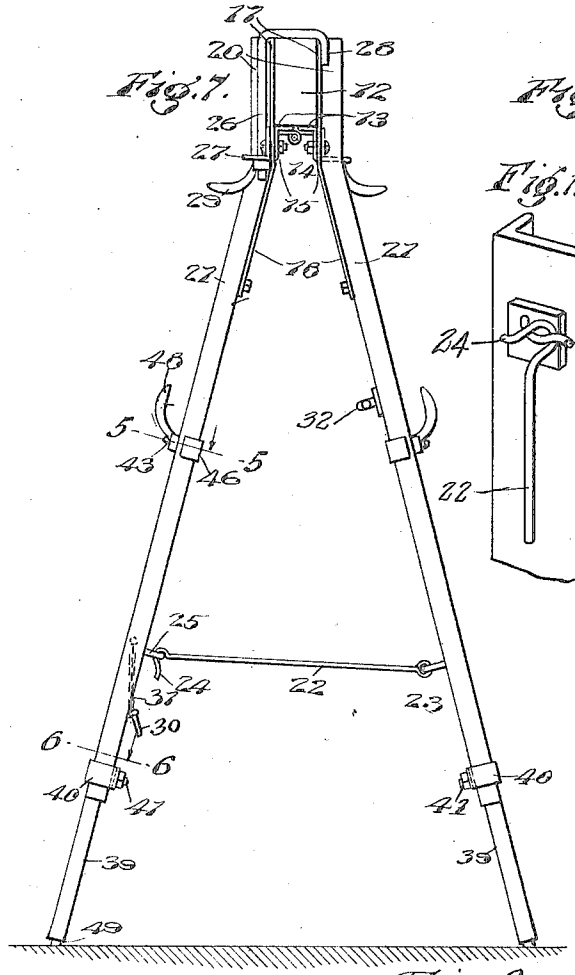


Fig. 8.

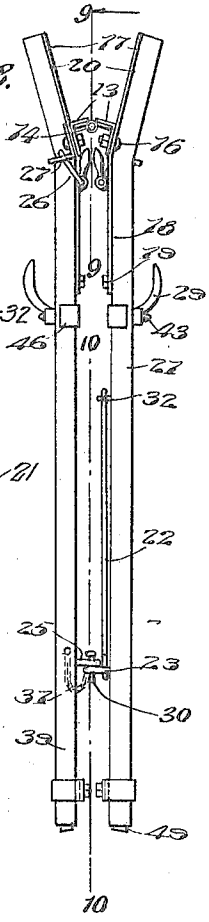


Fig. 12.

Fig. 9.

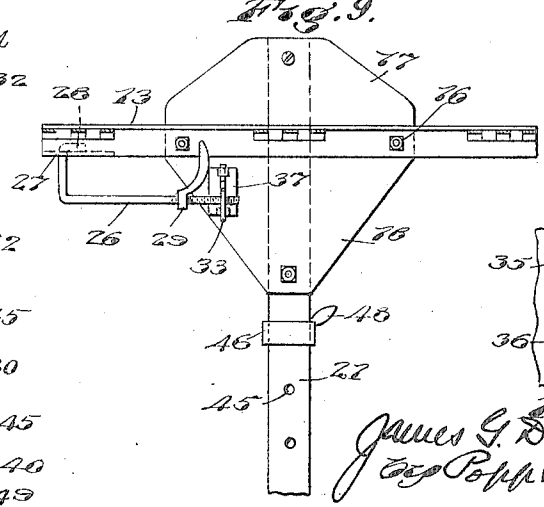


Fig. 10.

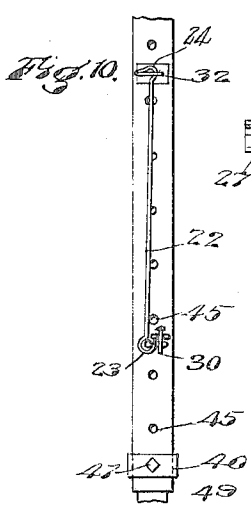
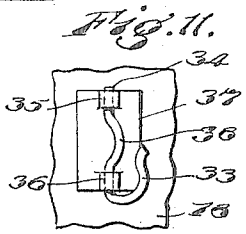


Fig. 11.



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Patented Sept. 25, 1928. 1,685,668

UNITED STATES PATENT OFFICE.

JAMES G. DAVIS, OF BUFFALO, NEW YORK.

FOLDABLE HORSE FOR TRESTLE BEAMS.

Application filed July 2, 1926. Serial No. 120,030.

This invention relates to a foldable horse for supporting the beam of a trestle and has for its object the production of a horse of this character which is comparatively simple in construction, which can be readily applied to and detached from a beam for producing a trestle, which can be compactly folded so as to occupy a minimum of space for convenience in transportation and storage and which with other horses in connection with a beam permits of erecting a trestle which is strong and durable and capable of withstanding the maximum loads which are likely to be imposed upon the same.

In the accompanying drawings:—

Figure 1 is a perspective view of a trestle embodying horses constructed in accordance with my invention.

Figure 2 is a fragmentary side elevation of a trestle showing one of my improved horses applied to the beam.

Figure 3 is a vertical cross section, on an enlarged scale, taken on the correspondingly numbered line in Figure 2.

Figure 4 is a fragmentary vertical section, on an enlarged scale, taken on line 4—4, Fig. 2.

Figures 5 and 6 are horizontal sections, on an enlarged scale, taken on the correspondingly numbered lines in Figure 7.

Figure 7 is an end view of a trestle showing one of my improved horses applied to the beam and in condition for use.

Figure 8 is an end view of a trestle horse constructed in accordance with my invention and shown in a folded position ready for storage or transportation.

Figure 9 is a fragmentary vertical longitudinal section taken on line 9—9, Fig. 8.

Figure 10 is a similar section taken on line 10—10, Fig. 8.

Figure 11 is a fragmentary side elevation of one of the cheek plates of the trestle horse and the catch mounted thereon for holding the clamping bolt in its folded position.

Figure 12 is a fragmentary perspective view showing the means for holding the spreading rod when not in use.

In the following description similar characters of reference indicate like parts in the several figures of the drawing.

The numeral 12 represents the horizontal longitudinal beam of the trestle which may be constructed of any suitable material but preferably consists of a stick of wood of the proper dimensions which is greater in height than width and commonly known as a scantling and having a preferred dimension of two inches in width and four inches in height, although this is not essential.

To this beam one or more foldable horses are applied which are constructed in accordance with my invention for the purpose of producing a trestle, two of such horses being shown at opposite ends of the beam for the purpose of illustrating one application of my invention. Although the foldable horse containing my improvements may be variously constructed so far as its details are concerned that form of the same which is shown in the drawings, as an example, is constructed as follows:

13, 13 represent the two leaves in a hinge which in their normal operative position are arranged horizontally and parallel lengthwise of the beam so as to form a saddle which is adapted to engage with the underside of the beam and provide a support therefor, as shown in Figures 1, 2, 3 and 7. These two leaves are pivotally connected with each other in the manner of a hinge by means of a horizontal pivot pin 14 passing lengthwise through corresponding eyes on these saddle leaves. The combined width of these two leaves or plates is preferably equal to the width of the beam 12 so as to properly fit the underside of the same. At their outer edges these saddle leaves are provided with downwardly projecting flanges 15 so that each of these saddle plates together with its depending flange forms a section which is of L-shape form.

On its outer side each of these saddle sections has secured thereto a cheek plate which has its central part secured to the depending flange of the respective saddle section by means of a bolt 16 while its upper part 17 projects above the respective saddle section and the lower part 18 of this cheek plate projects downwardly below said saddle section. This cheek plate is comparatively long so as to provide a wide bearing surface which is adapted to engage with the adjacent vertical side of the beam, as shown in Figure 2. Arranged vertically on the outer side of each cheek plate is an upright bar which is of channel form in cross section, the hollow or concave side of which faces outwardly and which has an upper part 20 engaging with the upper part 17 of the cheek plate and secured thereto and a lower part 21 engaging with the outer side of the lower part 18 of the

cheek plate and secured thereto. The upper part 20 of this bar and the respective upper part 17 of the cheek plate together form an upwardly projecting jaw on the respective saddle section which is adapted to bear against the outer side of the beam while the lower part 21 of this bar forms the upper section of an extensible leg for this side of the horse as will be described later on. When the upper portion 17 of each cheek plate and the adjacent upper part 20 of the respective channel bar are arranged at an angle relative to the lower parts 18 and 21 of this cheek plate and bar so that when the trestle horse is folded the leg sections 21 will be arranged parallel and vertical and the jaw portions 17 and 20 of these members will diverge upwardly, as shown in Figure 8, but when the jaw portions 17 of both cheek plates and the jaw portions 20 of both bars are engaged with opposite sides of the beam in the assembled portion of the trestle, as shown in Figure 7, these jaw portions are arranged vertically and the leg portions 21 diverge downwardly. The jaws of each horse are thus held in engagement with opposite sides of the beam 12 for the purpose of firmly gripping the same by retaining the leg portions in a spread position. This is preferably accomplished by means which permit of readily folding and unfolding the horse and for this purpose the means shown in the drawings comprise a spreading rod 22 pivotally connected at one end with an eye 23 on one of the leg portions 21 while the hook 24 at its opposite end engages with an eye 25 on the leg portion of the other bar, as shown in Figure 7. In addition to gripping the beam on its opposite vertical sides means are provided for holding the beam firmly down upon the saddle formed by the plate sections 13, 13. The preferred means for this purpose consist of a hook bolt having a shank 26 which is normally arranged in a bracket 27 projecting laterally from each of the saddle sections, a hook 28 arranged at the upper end of the shank 26 and adapted to engage over the top of the beam, and a screw nut 29 arranged at the lower end of the shank 26 and bearing against the underside of the bracket 27 in the assembled position of the parts, as shown in Figures 1, 2, 3 and 7. For the purpose of dismembering the horse and beam of the trestle the nut 29 is loosened so as to permit the shank and hook of the bolt to be raised sufficiently to disengage the hook from over the beam after which the parts can be easily separated and the horse folded into a compact position for storage or transportation.

In order to retain the horse in its folded position and also prevent the spreading rod 22 and the beam clamping bolts from dangling means are provided for locking the two leg portions 21 together; also retaining the spreading rod definitely in a folded position and also holding the beam clamping bolt along the underside of the saddle and against the inner side of the respective cheek plate, thereby permitting this horse to be handled freely during transportation and storage without liability of any of its parts becoming entangled or interfering with other parts. The means for holding the horse in its folded position comprises a locking pin 30 which is adapted to pass through the eyes 23 and 25 of the leg portions 21 when the latter are folded or brought into a position parallel with each other, the two eyes 23 and 25 being sufficiently offset vertically relatively to each other to permit the same overlapping one another, as shown in Figure 8. In order to prevent the locking pin 30 from becoming lost when the same is not in use a flexible retaining member 31 is provided preferably in the form of a small chain which connects this locking pin with the adjacent part of the main frame, as shown in Figures 1, 7 and 8.

The spreading rod 22 in the folded position of the horse is turned upwardly along the inner side of the leg portion 21 on which it is pivoted and the same is retained in this position by engaging the hook 25 at its upper end with a catch 32 attached to the upper part of the inner side of the respective leg portion 21, as shown in Figures 8 and 10.

For shifting the beam clamping bolt into a position in which it is out of the way and not liable to interfere with other parts, the shank and hook of this bolt are slipped downwardly in the respective bracket 27 until only the bill of this hook bolt engages with the upper side of the bracket 27 and the shank is arranged horizontally below the respective saddle section 13 in which position the bolt may be held by engaging the lower end of the same with a catch 33 preferably of hook form mounted on the adjacent inner side of the lower part 18 of the respective cheek plate, as shown in Figure 9. This catch is preferably formed on a vertical pintle 34 which is pivotally mounted on the adjacent part of the respective cheek plate by engaging the upper and lower part of this pintle with bearings 35, 36 formed on a pivot plate 37 which is secured to the adjacent part of the respective cheek plate by spot welding or other suitable means, as shown in Figure 11. The central part of this pintle is preferably offset, as shown at 38, which prevents this pintle from becoming displaced vertically and holds the catch 33 thereof reliably in position. When not in use the catch 33 may be folded flatwise against the inner side of the lower part 18 of the respective cheek plate, as shown in Figure 11, but when the same is to be used this catch 33 is swung at right angles to the respective cheek plate, as shown in Figure 9 for the purpose of enabling the lower end of the hook bolt 26 to be engaged therewith and thereby

prevent this hook bolt from dangling and interferring with other parts while the horse is being transported or carried about.

In order to render the trestle adjustable as to height for adapting the same to different requirements or meet different conditions each of the upper leg sections 21 is provided with a lower leg section or extension 39 which can be moved vertically on the upper leg section and then held in place so that the total length of the leg may be varied to suit requirements. This lower leg section 39 is also preferably constructed of metal in the form of a channel bar which has its concave or hollow side facing inwardly and which slides in the outwardly opening hollow or concave side of the respective upper leg section 21. The lower parts of the sections of each leg are guided lengthwise upon each other by means of a loop 40 which preferably consists of a strip of metal embracing both of these leg sections and secured to the wide channel iron by means of a bolt 41 which also passes through the overlapping ends of this strip, as shown in Figure 6.

Various means may be provided for holding the upper and lower sections of each adjustable leg in the required relative position to suit the desired height of the trestle. The means for this purpose comprises a clamping bolt 43 passing through an opening 44 in the lower or narrow leg section while its inner part passes through one or another of a longitudinal row of openings 45 in the wide upper leg section. The head 46 of this bolt is provided with a U-shape clip 47 adapted to embrace the inner side of the wide upper leg section and the outer threaded end of this bolt receives a clamping screw 48 adapted to bear against the outer side of the narrow leg section, as shown in Figures 1, 2, 5, 7 and 8. By shifting the bolt 43 from one opening 45 to another in the upper wide leg section the length of the respective leg may be varied to suit the height of the trestle required and after such adjustment these parts may be firmly interlocked by tightening the nut 48. By providing the clamping bolt 43 with a U-shape clip which embraces the wide leg section the latter together with the narrow leg section embraced thereby are prevented from spreading upon tightening the nut 48 and thereby producing a perfectly rigid leg which strengthens the horse as a whole and reliably supports the beam mounted on the horse.

For the purpose of providing a wide bearing surface for each lower leg section on the floor or ground upon which it rests a foot piece or toe 49 is fitted in the lower end of each leg section 39 and secured thereto by means of screws 50 or otherwise. This foot piece may be made of wood or other suitable material so as not to mar the floor upon which the same rests and it is also provided with a nailhole 52 whereby this foot may be nailed to the floor if this is required in order to prevent the horse from becoming accidentally displaced and thus insuring safety of the operators who are working on the trestle or scaffold of which the horse forms a part.

As a whole this horse is comparatively simple in construction and composed of few parts all of which are made of standard forms of materials, thereby enabling the horse to be manufactured at low cost. Aside from this the horse when in use forms a reliable support for the beam to which it is rigidly connected, thereby insuring safety of the operators and it is also possible to easily and quickly set up the horse and attach it to a beam as well as to dismantle the same when it is no longer required. Furthermore this horse can be very compactly folded when not in use and stored away in a comparatively small space, thereby enabling a larger number of such horses to be transported in a load than has been possible heretofore, whereby the cost of such work when erecting buildings or like structures is materially reduced and it is also possible to take care of a larger number of horses in the same storage space during an inactive period of the building season.

I claim as my invention:—

1. A foldable horse for supporting a beam to form a trestle, comprising a saddle adapted to engage said beam on its underside and composed of two longitudinal sections which are pivotally connected to swing vertically relatively to each other, jaws projecting upwardly from said saddle sections and adapted to engage with opposite sides of said beam, legs projecting downwardly from the saddle sections, and means for holding said beam down on said saddle comprising a bracket arranged on one of said saddle sections and a bolt having a vertical shank passing through said bracket and a hook at the upper end of said shank adapted to engage over the top of the beam, and a screw nut arranged on the lower end of said shank and adapted to engage with the underside of said bracket.

2. A foldable horse for supporting a beam to form a trestle, comprising a saddle adapted to engage said beam on its underside and composed of two longitudinal sections which are pivotally connected to swing vertically relatively to each other, jaws projecting upwardly from said saddle sections and adapted to engage with opposite sides of said beam, legs projecting downwardly from the saddle sections, means for holding said beam down on said saddle comprising a bracket arranged on one of said saddle sections and a bolt having a vertical shank passing through said bracket and a hook at the upper end of said shank adapted to engage over the top of the beam, and a screw nut arranged on the lower end of said shank and adapted to engage with the underside of said bracket, and means for

supporting said bolt in a folded position underneath said saddle comprising a catch arranged on one of said legs and adapted to receive said shank.

3. A foldable horse for supporting a beam to form a trestle, comprising a saddle adapted to engage the underside of the beam and having pivotally connected sections, upright plates secured to the sections of the saddle and projecting upwardly and downwardly therefrom, upright bars secured to the outer sides of said plates and extending above and below the respective saddle sections, the upper parts of said plates and bars forming jaws for gripping opposite sides of said beams and the lower arts of said plates and bars forming supporting legs, means for holding the beam down on the saddle comprising a bracket arranged on one of said saddle sections, and a bolt having a shank passing through said bracket and having an upper hook adapted to engage the top of the beam and a lower screw nut adapted to engage the underside of said bracket, and means for supporting said bolt in a folded position underneath the saddle comprising a catch adapted to receive said bolt and having an upright pintle and a base secured to the inner side of one of said plates and provided with bearings in which said pintle is journaled.

4. A foldable horse for supporting a beam to form a trestle, comprising a saddle adapted to engage the underside of the beam and having pivotally connected sections, upright plates secured to the sections of the saddle and projecting upwardly and downwardly therefrom, upright bars secured to the outer sides of said plates and extending above and below the respective saddle sections, the upper parts of said plates and bars forming jaws for gripping opposite sides of said beams and the lower parts of said plates and bars forming supporting legs, means for holding the beam down on the saddle comprising a bracket arranged on one of said saddle sections, and a bolt having a shank passing through said bracket and having an upper hook adapted to engage the top of the beam and a lower screw nut adapted to engage the underside of said bracket, and means for supporting said bolt in a folded position underneath the saddle comprising a catch adapted to receive said bolt and having an upright pintle and a base secured to the inner side of one of said plates and provided with bearings in which said pintle is journaled, said pintle having a lateral off-set between the bearings in which the same is journaled forming a stop which prevents lengthwise movement of said pintle in said bearings.

5. A foldable horse for supporting a beam to form a trestle, comprising a saddle adapted to engage the underside of the beam, jaws projecting upwardly from the saddle and adapted to grip the sides of the beam, legs projecting downwardly from the saddle, means for holding said legs in a spread position, and means for connecting said legs in a folded position consisting of two coupling eyes arranged on said legs and adapted to overlap in the folded position of the legs, and a pin adapted to pass through both of said eyes.

6. A foldable horse for supporting a beam to form a trestle, comprising a saddle adapted to engage the underside of the beam and having pivotally connected sections, jaws projecting upwardly from said saddle sections and adapted to engage opposite sides of the beam, legs mounted on said saddle sections and each having an upper channel section secured to one of said saddle sections, and a lower channel section sliding on the upper channel section, and a coupling bolt adapted to pass through one of said leg sections and different parts of the other leg section, said leg sections having their concave sides facing each other.

7. A foldable horse for supporting a beam to form a trestle, comprising a saddle adapted to engage the underside of the beam and having pivotally connected sections, jaws projecting upwardly from said saddle sections and adapted to engage opposite sides of the beam, legs mounted on said saddle sections and each having an upper channel section secured to one of said saddle sections, and a lower channel section sliding on the upper channel section, a coupling bolt adapted to pass through one of said leg sections and different parts of the other leg section, said leg sections having their concave sides facing each other, and a clip connected with the head of said bolt and embracing one of said leg sections to prevent the leg sections from spreading.

In testimony whereof I hereby affix my signature.

JAMES G. DAVIS.