Dec. 21, 1926. 1,611,376

A. REIMAN

COLLAPSIBLE HORSE

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Fig.1.

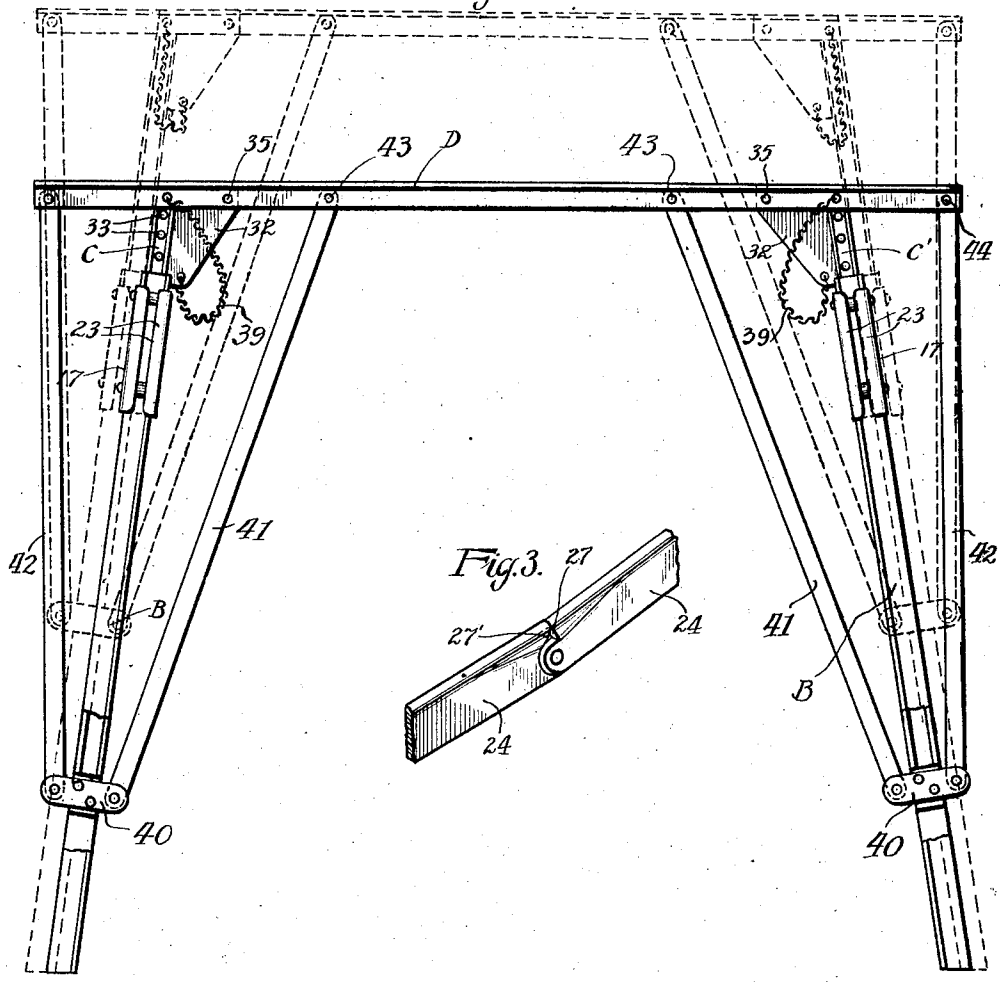
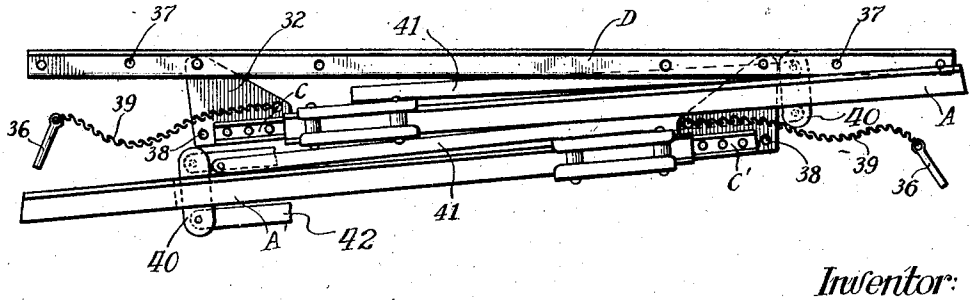


Fig.3.

Fig.2.



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Fig. 4.

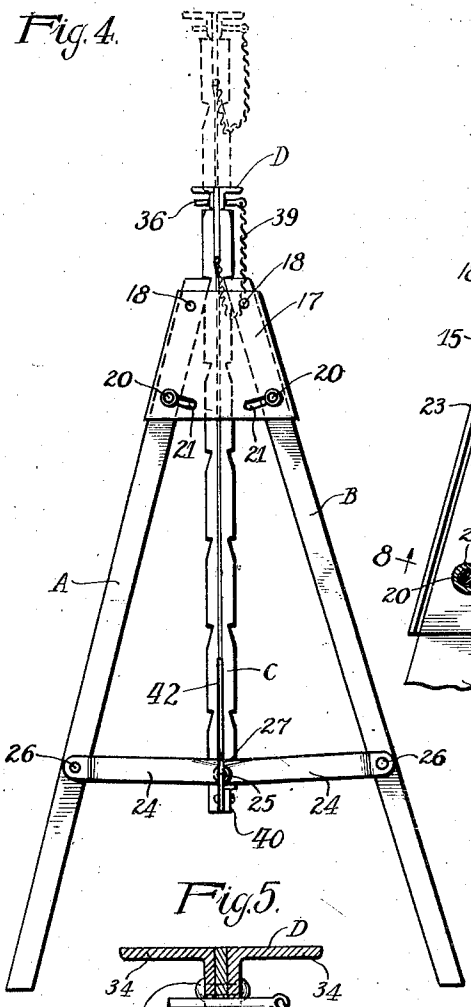


Fig. 6.

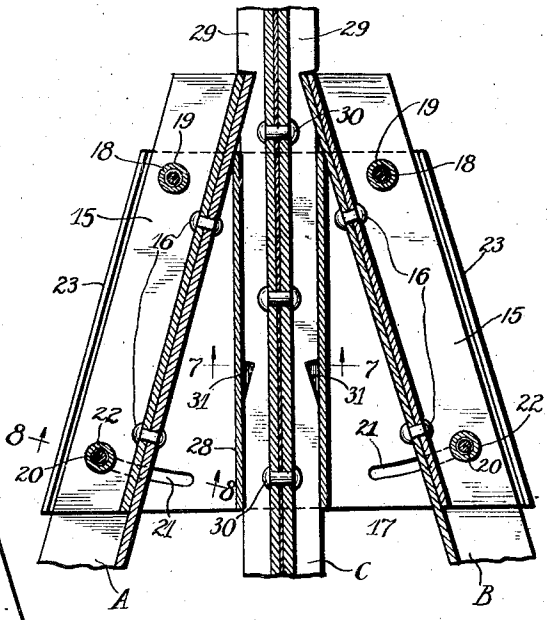


Fig. 7.

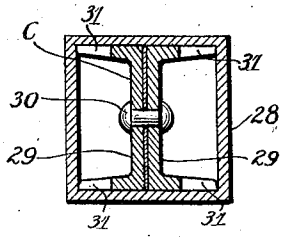


Fig. 5.

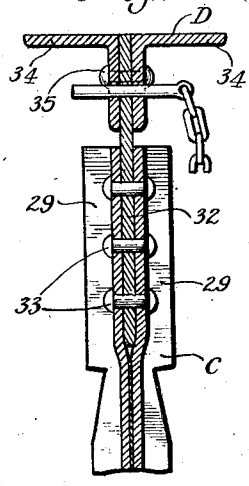
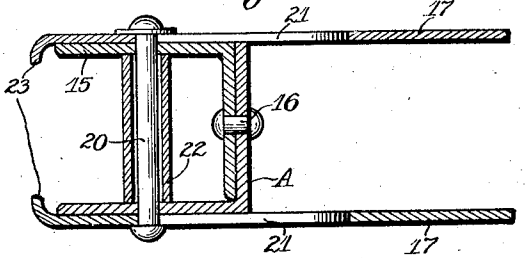


Fig. 8.



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Fig.9.

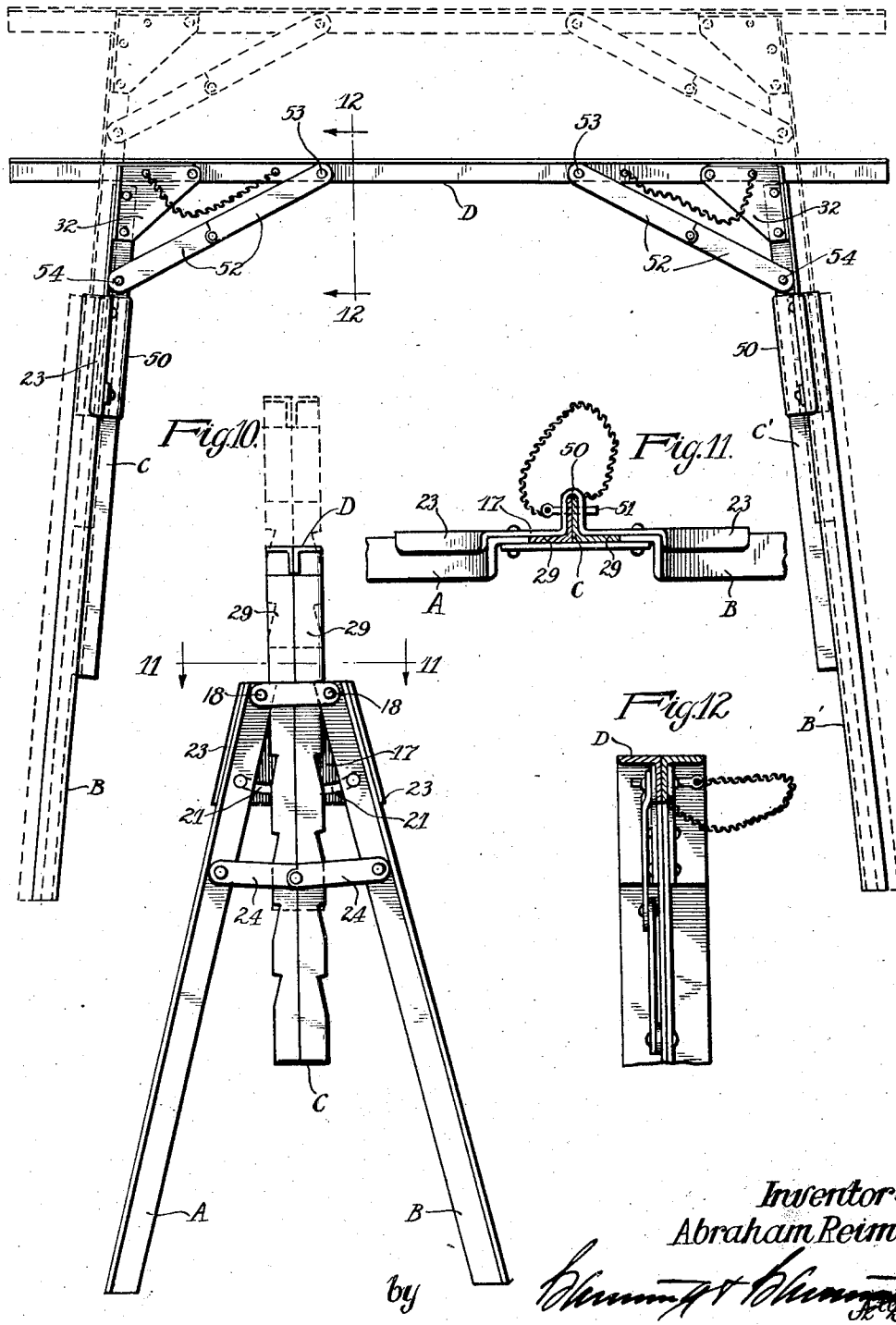


Fig.10.

Fig.11.

Fig.12.

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by

Patented Dec. 21, 1926. 1,611,376

UNITED STATES PATENT OFFICE.

ABRAHAM REIMAN, OF CHICAGO, ILLINOIS.

COLLAPSIBLE HORSE.

Application filed August 27, 1924. Serial No. 734,398.

This invention which relates to a horse for supporting loads, is concerned particularly with certain features of construction by which the device may be folded up for shipment, storage, etc.; by which it may be readily adjusted to different heights, as desired; by which its several components may be produced conveniently from bars, plates, etc., of standard formation; and by which such components may be assembled into a unitary structure having the necessary strength for sustaining heavy loads. Certain exemplifications of my invention in a preferred form are shown in the accompanying drawings in the manner following:

Figure 1 is a side elevation of the horse erected;

Fig. 2, which is a similar view thereof, shows the horse folded up;

Fig. 3 is a fragmentary detail in perspective of the toggle connection between one pair of legs;

Fig. 4 is an end elevation of the horse set up for use;

Fig. 5 is a detail in vertical section of the upper end of one adjustable upright and associated parts;

Fig. 6 is an enlarged detail in vertical section showing the upper ends of two legs, together with adjustable upright supported thereby;

Fig. 7 is a detail in horizontal section taken on line 7—7 of Fig. 6;

Fig. 8 is a similar view on line 8—8 of Fig. 6;

Fig. 9 which is a side elevation, shows an erected horse of modified construction;

Fig. 10 is an end elevation thereof;

Fig. 11 is a detail in horizontal section taken on line 11—11 of Fig. 10; and

Fig. 12 is a detail in vertical section taken on line 12—12 of Fig. 9.

As shown in the drawings the major elements of the present horse include a pair of legs A and B at one end and a similar pair of legs A′ and B′ at the opposite end of the device. These two pairs of legs provide support, respectively, for adjustable uprights C and C′ between which is extended a load carrying bar D. For convenience and economy in construction and assembly, these several major elements may be specially formed in the manner which will now be explained.

According to the exemplification shown in Figs. 1 to 8 inclusive, each of the four legs is made of angle iron. At the upper end of each leg is a reinforcing angle piece 15, also of angle iron, and connected therewith as by rivets 16 to provide a channel formation. Each pair of legs is confined at its upper end between a pair of bracket plates 17 with the aid of pivot pins 18, one for each leg, each pin passing through the two plates, two angle irons, and a spacing sleeve 19, as shown, to provide a hinged connection. An additional connection between each leg and the bracket plates is also provided, and this may consist of a pin 20 which extends through a slot 21, one in each plate, as well as through the leg, reinforcing irons, and spacing sleeve 22 in such a manner as to having a sliding movement within these slots. By the means described, the swinging movement of each leg is stopped definitely when the pin 20 abuts one end of the slot 21. As shown, each of the two bracket plates may be inwardly flanged as at 23 along its opposite sides which are tapered in conformity with the outermost position which the legs are permitted to assume. These flanges are adapted to serve as an additional means for limiting the outward movement of the legs.

Between each pair of legs in their lower region is a toggle connection compressing a pair of links 24 pivoted to each other at 25 and to the legs at 26. Abutting shoulders 27 are formed at the meeting ends of these links (see Fig. 3) adapted to engage with each other only when the links have been moved slightly beyond the line of the two pivots 26. It is preferred that the stop means should so limit the movement of each pair of legs that the toggle links may be brought to final position only with the application of an appreciable force, the result being that these links will thereby normally be held against return movement.

Each pair of bracket plates provides support between the legs connected thereto for a guide member 28, here shown as a tube having, by preference a square cross section. These tubes are adapted to receive the two adjustable uprights C, each of which may conveniently be formed of a pair of channel bars 29 arranged back to back and united by rivets 30, as shown in Fig. 7. At intervals the flanges of these uprights are notched as at 31 in such a manner as to receive the upper ends of the legs, each of which engages within two notches (see Fig. 6), to

provide a secure support for the uprights. The position of vertical adjustment of these uprights can quickly be changed but only by first breaking the toggle connection 24 and then folding the legs inwardly a sufficient distance to remove their extremities from the notches. In any of its adjusted positions, the guide tubes 28 add such lateral support to the uprights as may be required.

The load supporting bar D is connected with the upper end of each upright as through the medium of a gusset plate 32 which may be secured fixedly between the two channel bars 29 as by rivets 33 (see Fig. 5). Each gusset plate is also extended between a pair of angle irons 34 which together may form the load supporting bar D. A pivotal connection 35 is provided between each gusset plate and the supporting bar D such as to permit of each pair of legs being folded inwardly to the position shown in Fig. 2. To lock the legs against any such movement when the horse is erected, I provide two pins 36 adapted to enter openings 37 and 38 in the supporting bar and gusset plates, respectively, each pin being shown as attached to a chain 39 having a connection with a fixed part of the device. To further make secure and rigid the structure heretofore described, I may also equip each upright C at its lower end with a bracket member 40 to which is pivotally joined a pair of arms 41 and 42 having a detachable connection with the load supporting bar as at 43 and 44, respectively.

The horse shown in Figs. 9 to 12 inclusive which is both foldable and adjustable, follows in general the construction already described. Accordingly the preceding reference numerals have been reproduced wherever applicable to the corresponding parts of this modified structure.

As suggestive of certain changes which I contemplate as within the scope of this invention, each pair of legs is shown as connected to a single bracket plate 17, and the upright bar C as being formed from a pair of angle irons 29. Means for guiding the movements of each upright is provided by forming the bracket plate with a channel 50 wherein is received two of the abutting flanges of the upright components. In addition, a pin 51 may provide a temporary support for each upright preliminary to proper engagement of the upper ends of the several legs within the notches hereinbefore described. Instead of providing rigidity to the structure by the use of arms which connect the load supporting bar D with each bracket plate, I have shown a toggle connection consisting of a pair of pivoted links 52 one connected to the supporting bar as at 53 and the other to the upright as at 54. In such a construction it is unnecessary to provide several points of connection between the links and the load supporting bar, inasmuch as the distance between the two pivots 53 and 54 remains constant irrespective of vertical adjustments which are effected. This structure is also foldable, in the same manner as the one previously described, and hence has all the advantages of being compact and easily handled when not in use.

The forms which my invention may take are many, but the structures herein shown and described are representative of two which are particularly advantageous. Besides having the necessary strength for sustaining a heavy load, the several parts are so arranged and connected so as to reinforce the structure as a whole, and to remain set in extended position when the device is erected for use.

I claim:

1. A horse in which is comprised a load supporting bar, a pair of uprights hinged thereto, and each foldable toward the other, a guide wherein the upright is slidably mounted, a bracket to which the guide is secured, a pair of legs swingingly connected to the bracket and adapted, when distended, to engage with the upright to hold the same in a given position of adjustment, and a detachable connection between each upright and the load supporting bar adapted to prevent folding of the legs, with respect thereto, substantially as described.

2. A horse in which is comprised a load supporting bar, a pair of uprights hinged thereto and each foldable toward the other, each upright comprising two united bars having oppositely extended edges wherein are formed notches, and a support for each upright consisting of a pair of legs foldable toward and from each other and adapted, when distended, to engage with certain of the notches of the upright whereby the latter is supported positively in a selected position of adjustment, substantially as described.

ABRAHAM REIMAN.