

J. CORNELIUS.

WRECKING MACHINE OR STUMP EXTRACTOR.

No. 468,644.

Patented Feb. 9, 1892.

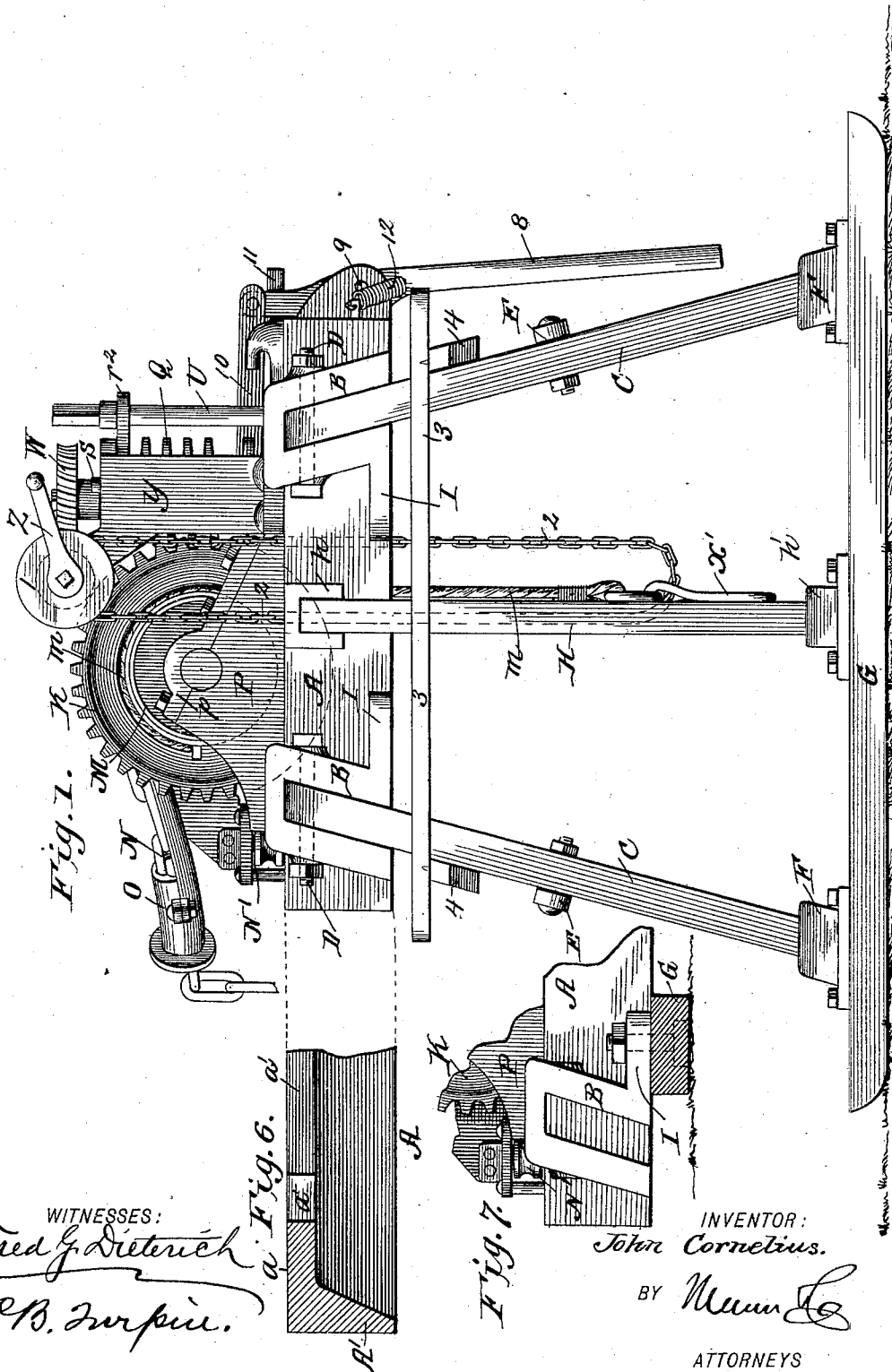


Fig. 1.

Fig. 6.

Fig. 7.

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(No Model.)

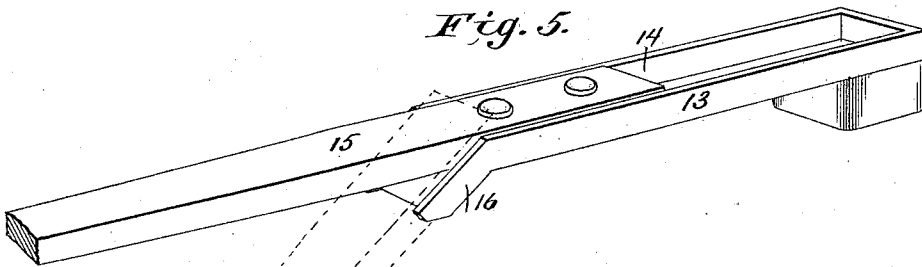
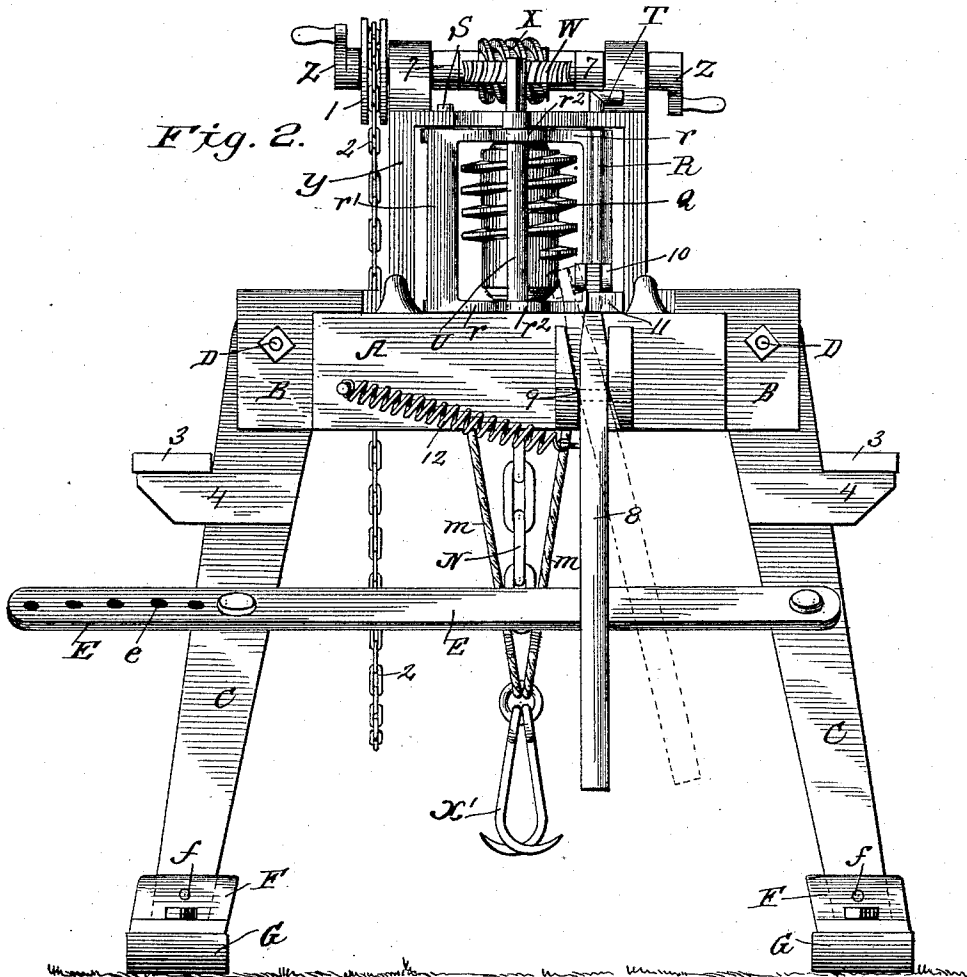
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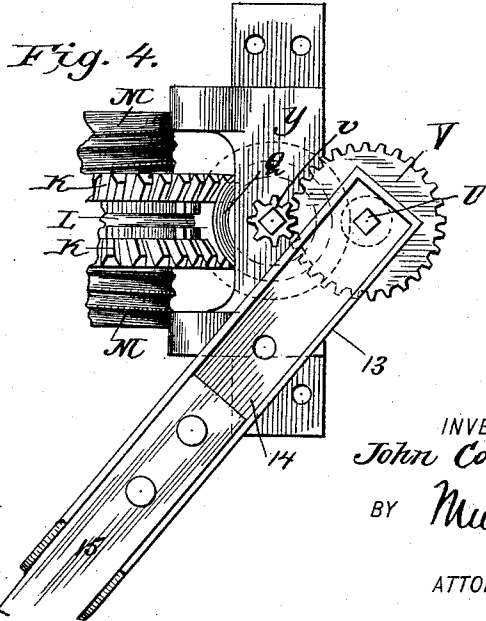
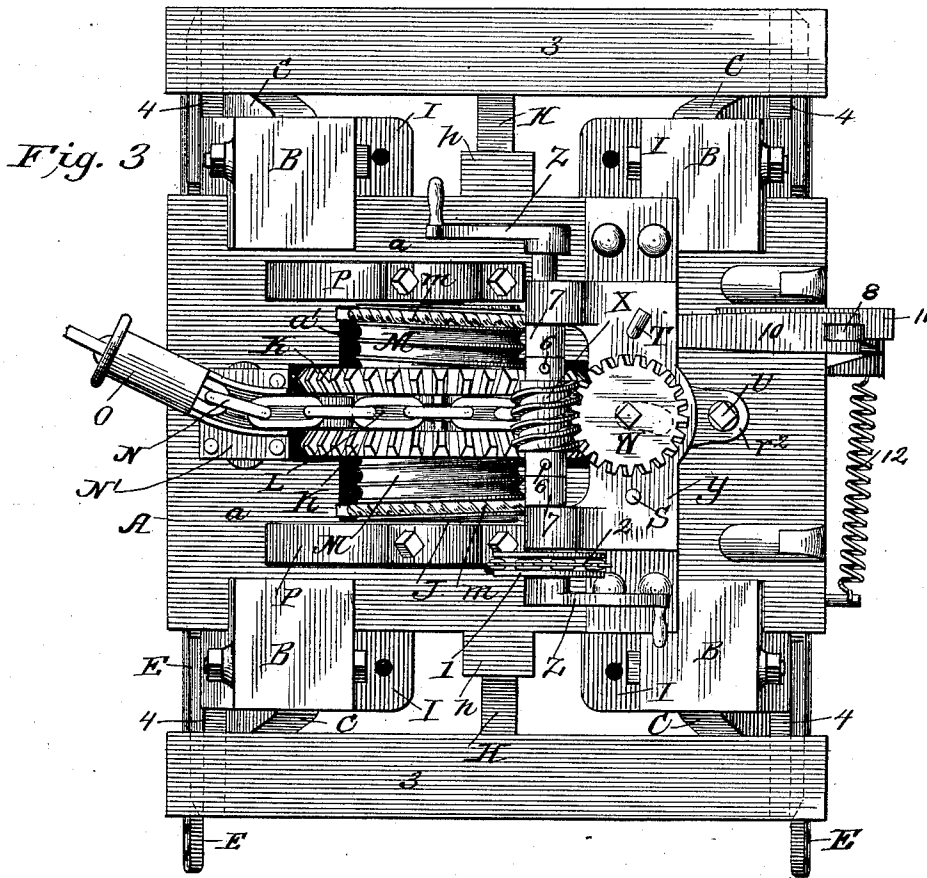
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UNITED STATES PATENT OFFICE.

JOHN CORNELIUS, OF OAKLAND, MARYLAND, ASSIGNOR OF ONE-HALF TO
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WRECKING-MACHINE OR STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 468,644, dated February 9, 1892.

Application filed August 14, 1891. Serial No. 402,671. (No model.)

To all whom it may concern:

Be it known that I, JOHN CORNELIUS, of Oakland, in the county of Garrett and State of Maryland, have invented a new and useful Improvement in a Wrecking-Machine or Stump-Extractor, of which the following is a specification.

My invention is an improved wrecking-machine or stump-puller, and has for an object, among others, to provide a simple construction of combined machine which will possess the necessary strength, be easily convertible to either an elevated wrecking-machine or a flat pulling-machine, and may be conveniently arranged for extraordinary power or for a medium power and a somewhat faster speed or for a less degree of power and a high rate of speed, so that the machine can be advantageously used for light work where a fast movement is desired, for somewhat heavier work with a slower speed, or for the heaviest work, as occasion may require.

The invention consists in certain features of construction and novel combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side view, Fig. 2 an end view, and Fig. 3 a top plan view, of the machine arranged for wrecking and geared up for the heaviest work. Fig. 4 is a top plan view of the machine geared for light work. Fig. 5 shows the sweep in detail. Fig. 6 is a detail view of a part of the bed-plate, and Fig. 7 is a detail view illustrating the application of the runners directly to the base-frame.

In carrying out my invention I employ a framing including a base or bed A, having at its four corners socket-like parts B for the upper ends of the uprights or legs C, which uprights are pivoted by bolts D in said sockets, so that they can be adjusted to spread the machine in order to raise or lower the bed-plate A to the desired height. The end uprights are joined together by means of connecting-bars E, having a plurality of bolt-holes *e* at one end, so that their connection with one of the uprights may be set to permit the adjustment of the legs by spreading or drawing together, as before indicated. Thus it will be seen the bed-plate may be set to and held at any height

within the limits of the machine, or may be lowered to rest flat on the ground or the skids, presently referred to, when a low machine is desired. It will also be understood that, where desired, the bed-frame may be bolted or otherwise secured on a truck or similar carriage to facilitate the loading of safes and similar weighty objects thereon. At their lower ends the legs or uprights C fit in sockets F on the skids or runners G and are secured therein by pins *f*. It is manifest that by hitching a horse or team to the said runners the machine can be easily moved from place to place.

Where desired—as, for instance, when the pulling or lifting is extra heavy—the bed-plate may be braced and further supported by intermediate uprights or legs H, fitted at their upper ends in sockets *h* on the bed-plate and at their lower ends in sockets *h'* on the skids.

In adjusting the machine for use as a low or flat puller these intermediate sockets *h'* may be removed from the runners and the bed be fitted down on the said runners between the sockets F and bolted to the runners, as shown in Fig. 7, to which end I provide the bed-plate with lugs I I, perforated for the fastening-bolts, as shown.

In practice the bed-plate is preferably cast of steel or other suitable metal, with the several socket-pieces and lugs integral, and I form the said bed with the top plate *a*, having the opening *a'*, through which the cable and chain can hang, and with the edge flange-like portion A', which is preferably beveled outward on its inner surface and extends entirely around the edge of the top plate.

The pulling mechanism upon the top plate includes the main wheel J, which is composed of the worm-wheel made in the two side sections K K, the chain-wheel L, between the said sections, and the drums M, arranged outside the worm-wheel sections and receiving the cables *m*, which may be connected at their lower ends with suitable grabs X' for engaging the work to be lifted. The chain N, working in chain-wheel L, may also hang down and connect with the grabs, so that the chain and cable may be used jointly or either the chain or cables may be used alone; also, in the use of the machine on the ground the

cables may lead off and connect with the work and the chain may lead from the work in through the inlet-guide N', around the chain-wheel, and out through the stripper-guide O, and in such use of the machine either the cables or chain, or both, can be used; but for heavy work I prefer, in all instances, to use both the cables and the chains.

The main wheel is journaled in bearings in the side frames P, which are cast on the bed and have removable caps *p*. To turn the main wheel I provide the worm Q, formed to mesh with the worm-wheel sections and journaled in a frame R, which has upper and lower plates *r* and a connecting-plate *r'*, the latter having lugs for the bolt or rod S, by which the frame R is pivoted at one end. By thus pivoting the frame R at one end it may be adjusted to throw the worm into or out of mesh with the worm-wheel sections and the said parts may be secured in mesh by the locking-rod T. The upper and lower plates *r* are provided at *r*² with bearings for the gear-shaft U, which shaft, like the shaft of the worm, is extended upward and the upper ends of both shafts are adapted to receive the large and small gear-wheels V and *v*, and such wheels V and *v* may be used in any desired relation, the small wheel *v* being placed on the worm-shaft and the large wheel V on the gear-shaft U for small power and high speed, or vice versa, for medium power and a slower speed. For extra heavy work, however, I prefer to use a worm-wheel W on the upper end of the shaft of worm Q and to provide a drive-worm X for meshing said worm-wheel. The shaft of worm X journals in bearings in the frame Y and extends at both ends beyond the said bearings, being adapted at said ends to receive the hand-cranks Z and the chain-wheel 1, the chain 2 being passed over the said wheel 1 and down in convenient reach from the ground. By this chain the operator can from the ground turn the horizontal drive-worm and through the connections described turn the main wheel without going up on the machine. This will be found useful in light work; but for heavy work I intend to place a man at the cranks on both ends of the drive-shaft, step-boards 3 being supported on arms 4 on the legs C, such boards 3 being arranged to form a secure footing for the men at the cranks. By means of this drive-worm and the other construction described I am able to get power sufficient for the heaviest work.

The drive-worm is keyed on its shaft by a cross pin or pins 6, and on the shaft between the said worm and the bearings in the frame Y, I place washers 7 loose on the shaft, so that by removing the pin 6 the shaft and its worm may be removed.

It will be seen from the foregoing description that the several changes to adapt the machine for extra heavy work, for medium work with a slow speed, and for light work with a fast speed may be easily and quickly made. It will also be seen that by the arrangement of

the upright or main worm and the gear-shaft in the movable or pivoted frame the main worm may be quickly set into and out of gear with the worm-wheel sections. To move the said frame from the ground, I provide a lever 8, pivoted at 9, so that it can rock on said pivot and also be swung slightly in a direction at right angles to said rocking motion. The lower end of this lever extends in convenient reach from the ground, while its upper end connects by a link 10 with the swinging end of the frame R, so that the lever can be operated to throw such frame in or out. When the frame R is thrown in, the lever is engaged and locked by a hook 11, which serves also to lock the frame with the main worm, meshing the worm-wheel sections of the main wheel, the lever being automatically actuated into engagement with such hook by means of a spring 12, which may be arranged as shown.

Now it is manifest that my machine may be used for wrecking, pulling stumps, in quarries, in bridge-building, and for other purposes where a strong pull or lift is required, and it will be readily seen that, while the machine is capable of the heaviest work, it may be quickly adjusted by means of the interchangeable parts to permit it to be used with advantage on the lightest work where speed is desired.

My machine is especially desirable in wrecking, and in such use, when it is desired to remove a wrecked car or cars from the track, the machine may be anchored and its cable be passed through a block connected with such car and then run off to one side and be provided at its end with an anchor-hook similar to the half of an ordinary marine anchor, such hook being driven into the ground, when the machine may be operated to quickly pull the car to any desired position.

In order that the machine may be operated by a horse in both its elevated and lowered positions, I provide a sweep-support 13 of a special construction, having at one end a socket to fit on the shaft of either the main worm-wheel or of the gear-shaft and having its portion 14 next the said socket formed to provide a horizontal seat for the sweep-bar 15 when the machine is down on the ground, and having at the end opposite such socket a downwardly-inclined portion 16 to form a seat for the sweep-bar 15 when the machine is elevated on its legs, such inclination of the seat 16 serving to throw the outer end of the sweep down sufficiently low for a horse to be hitched thereto, the change of the sweep from a high to a low machine requiring only the removal and replacing of a few bolts.

Having thus described my invention, what I claim as new is—

1. The improved machine, substantially as described, comprising the base or bed A, provided with socket-like parts B for the upper ends of the legs and also provided with lugs I, the legs C, constructed at their upper ends to fit in the sockets B, the skids or runners G,

constructed and adapted to be bolted to the lugs I and provided with sockets formed to receive the lower ends of the legs C, and the pulling mechanism mounted on the base-plate, all substantially as described and shown, whereby the runners may be applied to the base or be utilized as feet and runners for the legs in the different adjustments of the machine, as and for the purposes specified.

2. The improved machine, substantially as described, comprising the base, the legs C, connected at their upper ends with such base and provided with arms 4, the step-boards supported on the said arms 4, and the pulling mechanism having its drive-shaft arranged above the step-boards and provided with crank-handles, substantially as and for the purposes set forth.

3. A machine comprising the base or bed supporting the pulling mechanism and provided at its opposite sides near its ends with sockets B and between said sockets B with sockets *h*, the skids or runners G, having end sockets F and intermediate sockets *h'*, and the legs C, fitted at their opposite ends in the sockets B and F, and the intermediate uprights or legs H, fitted at their opposite ends in the sockets *h* and *h'*, all substantially as and for the purposes set forth.

4. In a machine substantially as described, the combination of the main wheel provided with a worm-wheel, the main worm Q, meshing with said wheel and provided with a worm-wheel W, the drive-worm X, meshing with the latter worm-wheel W, and the necessary framing, all substantially as and for the purposes set forth.

5. The improved machine, substantially as described, comprising the main wheel having a worm-wheel, the main worm adapted to mesh with said worm-wheel and having its shaft extended and adapted to receive either a gear or a worm wheel W, a gear-shaft U, parallel with the axis of the main worm-wheel and having its extended end adapted to receive a gear-wheel, whereby gears may be supported on said shaft and the end of the main worm-shaft and arranged to mesh, and the necessary framing, substantially as and for the purposes set forth.

6. In a machine substantially as described, the combination of the main wheel having a worm-wheel, the main worm arranged to mesh with said worm-wheel, a movable frame R, supporting said main worm, a gear-shaft U, also journaled in the said movable frame, the end of the main worm-shaft being adapted to receive a worm-wheel or a gear-wheel and the end of the gear-shaft being adapted to receive a gear-wheel, and the framing having bearings for the shaft of the drive-worm, all substantially as set forth.

7. In a machine substantially as described, the combination of the main wheel having a

worm-wheel, the main worm adapted to mesh with said worm-wheel, a movable frame R, supporting said worm, a pivoted lever S, connected at one end with the movable frame and arranged to adjust said frame to set its worm into and out of mesh with the worm-wheel, and a fastening arranged for engagement by the lever, whereby to lock the worm in mesh with its wheel, substantially as set forth.

8. In a machine substantially as described, the combination of the main wheel having a worm-wheel, a worm arranged to mesh with said worm-wheel, a movable frame supporting the said worm, the pivoted lever connected at one end with the said movable frame, a hook-like fastening, and a spring by which to actuate the lever into engagement with the said fastening, whereby to lock the movable frame in one of its positions, all substantially as set forth.

9. In a machine substantially as described, the combination of the main wheel provided with a chain-wheel L, a worm-wheel formed of sections K, arranged on opposite sides of the chain-wheel, and drums M, arranged outside the said worm-wheel sections, the main worm arranged to mesh with the said worm-wheel, a worm-wheel on the shaft of the said main worm, and the drive-worm arranged to mesh with such worm-wheel, all substantially as and for the purposes set forth.

10. In a machine substantially as described, the combination of the main wheel having a worm-wheel K, the main worm Q, meshing with such wheel K and provided with a worm-wheel W, the drive-worm X, meshing with said worm-wheel W and having its shaft provided with a crank and a chain-wheel 1, and the chain 2, engaging said wheel 1, all substantially as and for the purposes set forth.

11. The improved machine, substantially as herein described and shown, consisting of the bed having sockets for the uprights or legs, the legs fitted and pivoted at their upper ends in the said sockets, the main wheel journaled in bearings on the bed and having a worm-wheel, the main worm Q, arranged to mesh with said wheel and having a worm-wheel W, a drive-worm X, meshing the latter worm-wheel W, a movable frame R, supporting the main worm Q, a pivoted lever S, connected at one end with said movable frame, a fastening-hook arranged for engagement by the lever, and a spring for actuating the lever into engagement with the said fastening-hook, all substantially as and for the purposes set forth.

The above specification of my invention signed by me in the presence of two subscribing witnesses.

JOHN CORNELIUS.

Witnesses:

SOPHIA CORNELIUS,
PERRY B. TURPIN.