

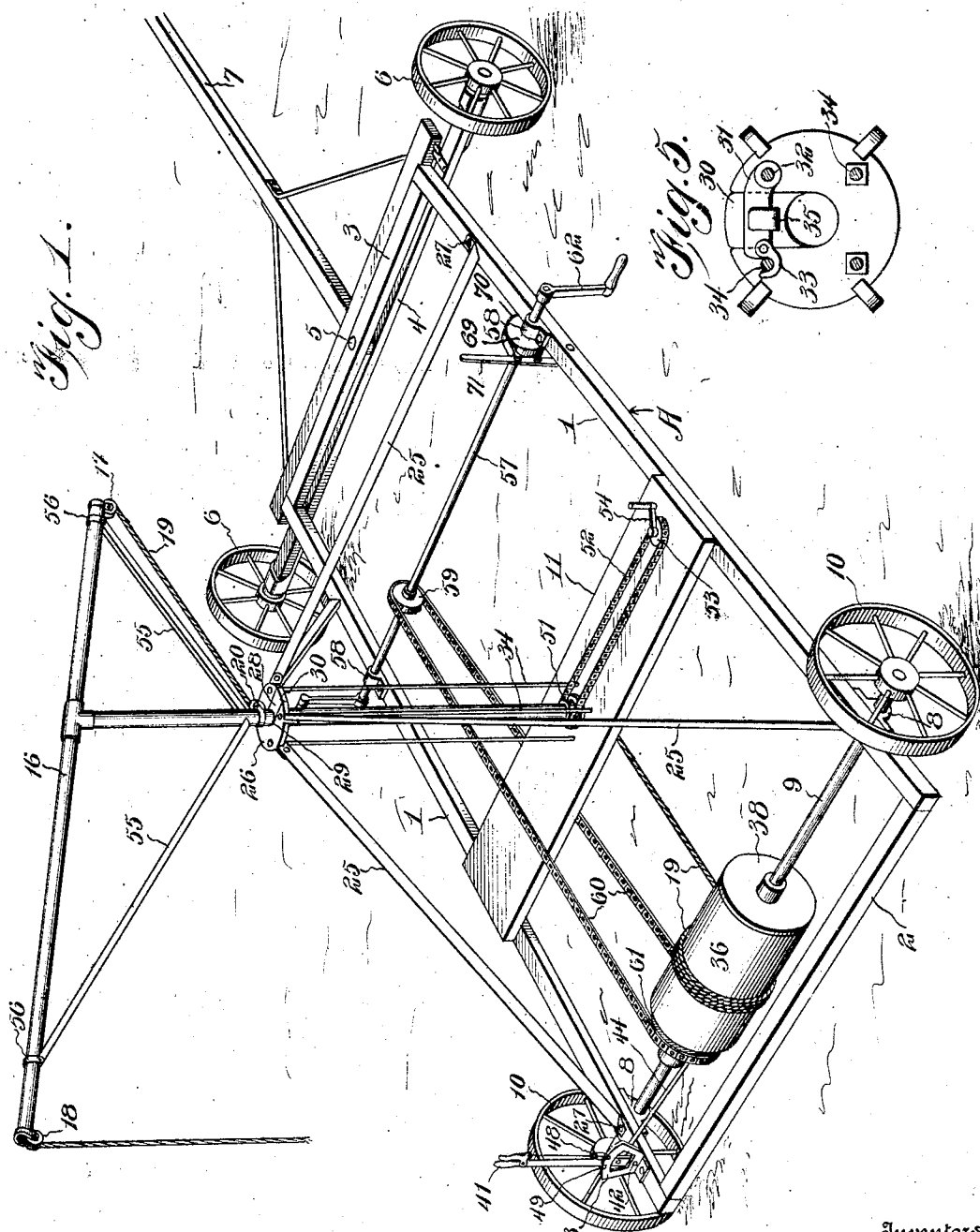
No. 889,054.

PATENTED MAY 26, 1908.

E. N. SMITH & C. WALKER.  
SHOCK LOADING MACHINE.

APPLICATION FILED JAN. 23, 1908.

2 SHEETS—SHEET 1.



Witnesses

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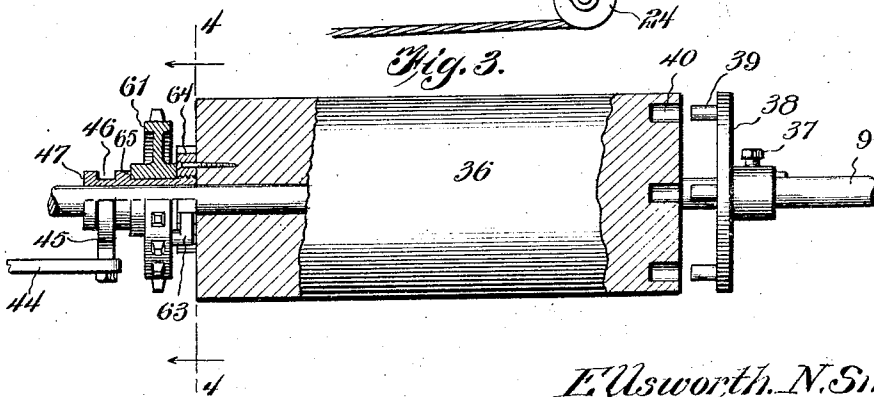
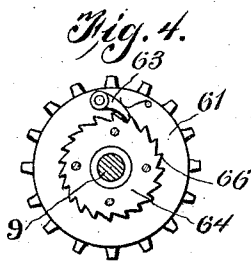
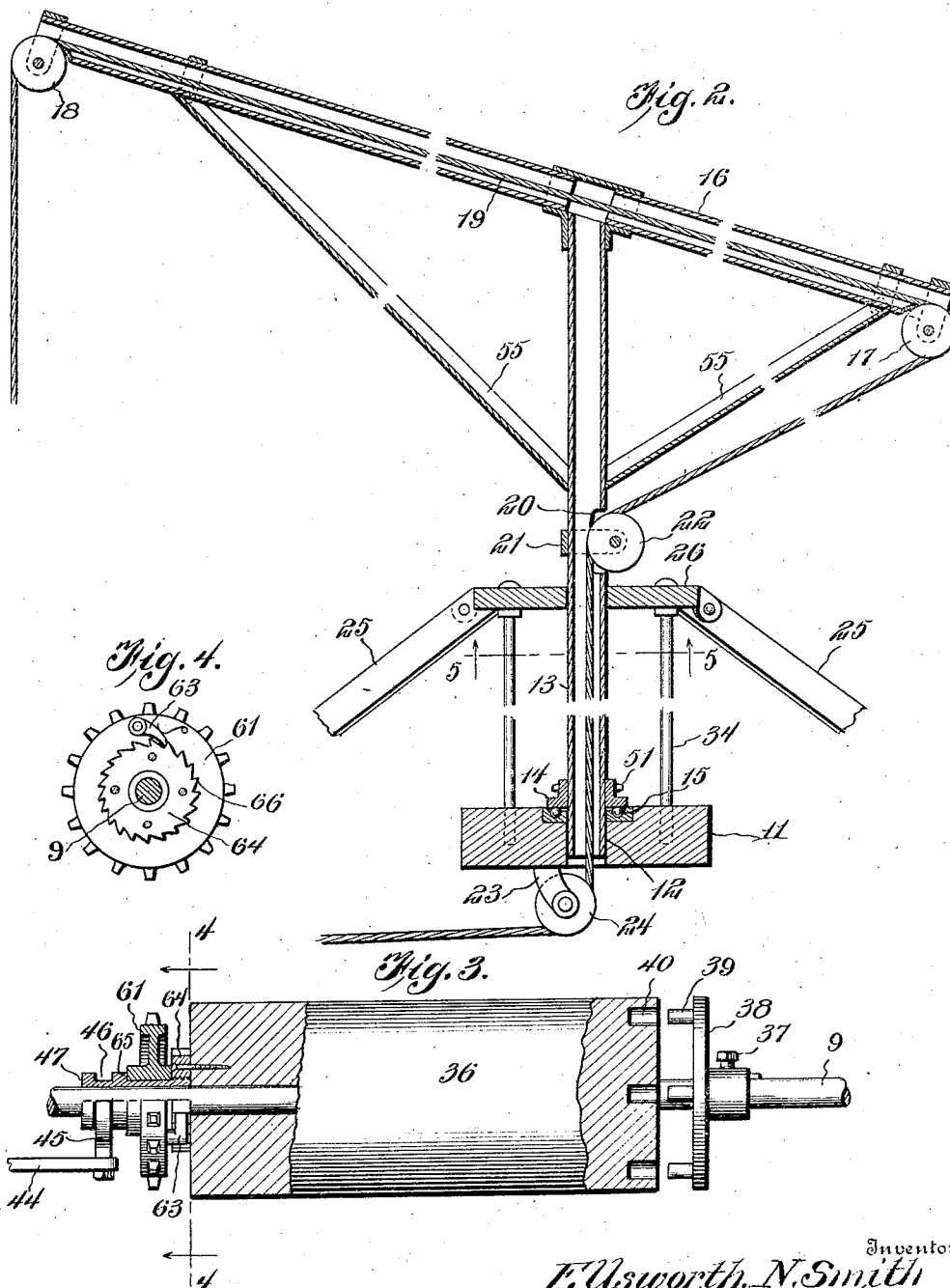
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# UNITED STATES PATENT OFFICE.

ELLSWORTH N. SMITH AND CHARLIE WALKER, OF DEWITT, IOWA.

## SHOCK-LOADING MACHINE.

No. 889,054.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed January 23, 1908. Serial No. 412,302.

*To all whom it may concern:*

Be it known that we, ELLSWORTH N. SMITH and CHARLIE WALKER, citizens of the United States, residing at Dewitt, in the county of Clinton and State of Iowa, have invented new and useful Improvements in Shock-Loading Machines, of which the following is a specification.

This invention relates to a shock loading device whereby shocks of fodder can be conveniently supplied to a shredding machine, or whereby shocks can be loaded on a wagon or transferred from one point to another in a simple and convenient manner.

The invention has for one of its objects to improve and simplify the construction and operation of machines of this character so as to be comparatively easy and inexpensive to manufacture, readily manipulated, and effective in operation.

A further object of the invention is the provision of a horse-drawn shock loading machine having a suitable lifting mechanism which may be operated by hand, as in removing shocks from one point to another while the vehicle is stationary, or which can be operated by the movement of the vehicle as in loading shocks upon a moving wagon traveling alongside of the machine.

A further object of the invention is the provision of a machine of this character including a removable standard pivotally mounted and carrying a boom, the standard and boom forming guides for the flexible element or cable to which the fork or other shock lifting device is attached, there being a suitable mechanism for turning the standard in order to carry the shock to the desired point of deposit.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a perspective view of the machine. Fig. 2 is a vertical section through the standard and boom with portions broken away. Fig. 3 is a rear view of the cable winding drum and adjacent parts for throwing the drum into and out of operation, portions of the parts being shown in section. Fig. 4 is a transverse section on line 4—4,

Fig. 3. Fig. 5 is a transverse section on line 5—5; Fig. 2, drawn on a reduced scale.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawings, A designates the body of the vehicle which may be of any suitable construction and consists in the present instance, of a rectangular frame composed of side bars 1 and end bars 2 and 3. Disposed under the front bar 3 is an axle 4 connected with the said bar by the pivot 5, there being front wheels 6 on the ends of the axle and a tongue 7, it being understood that the machine is intended to be drawn by horses. On the side bars 1 at a point adjacent their rear ends are bearings 8 in which rotates an axle 9 to which the rear traction wheels 10 are rigidly secured.

Supported on the side bars 1 is a cross beam 11 that has an opening 12, as shown in Fig. 2, for receiving the lower end of a tubular standard 13 which is provided with a collar 14 resting on bearing balls 15 so as to freely turn. On the upper end of the standard is secured, in fixed position, an inclined boom 16 which is also tubular and open at both ends. On the ends of the boom are grooved pulleys or sheaves 17 and 18, over which passes the cable or rope 19 which carries the usual fork or load-receiving device (not shown). At a point intermediate the ends of the standard 13 is an opening 20 through which the cord 19 passes from the pulley 17, the rope continuing downwardly through the standard and rearwardly from under the cross beam 11. Secured to the standard 13 at the recess 20 is a bracket 21 that supports the sheave or pulley 22, and supported on the under side of the beam 11 is a bracket 23 on which is mounted the sheave 24 over which the cable 19 runs. By arranging the lifting element or cable in this manner, the standard 13 can be readily turned without interference from the cable. The standard is steadied by means of braces 25 that have their lower ends secured to the side bars 1 adjacent the extremities thereof and their upper ends secured to a disk or collar 26 that is arranged on the standard at a point immediately below the pulley 22. These braces may be removably secured to the body of the vehicle as by means of bolts 27, so that they can be taken down when the machine is to be stored away, and in order to permit the standard to be removed, the disk 26

is provided with a slot 28 extending inwardly to the opening 29 which receives the standard, and this slot is normally closed by a keeper 30 which, as shown in Fig. 5, is held in locked position by a member 31 pivoted at 32 to the disk and having a hook 33 for engaging the rod 34, there being a lug 35 on the under side of the keeper for engaging the member 31 to prevent the keeper from moving outwardly. By removing the keeper and lifting the standard a distance sufficient to remove its lower end from the socket 12 in the cross beam 11, the standard can be removed laterally from the machine. The disk 26 is also supported by vertical rods 34 disposed around the standard and having their lower ends secured to the cross beam 11.

The lifting cable 19 is operated by means of a drum 36 mounted on the rear axle 9 of the vehicle. Secured to the said axle by means of a set screw 37 is a clutch element 38 that has laterally-projecting fingers 39 adapted to engage in apertures or depressions 40 in the adjacent end face of the drum, so that by longitudinal movement of the drum, the latter can be clutched or unclutched with respect to the rear axle. The drum is moved longitudinally by means of an operating lever 41, Fig. 1, that is pivoted at 42 on a bracket 43, and connected with the lever is a shifting rod 44 that carries at its inner end a forked member 45 which engages in the peripheral groove 46 of the sleeve 47 which is rigidly secured to the end of the drum opposite from the clutch. The lever 41 has a latch 48 that engages notches 49 in the bracket 43 so as to hold the drum either in clutched or unclutched position. When the drum is clutched to the rear axle, the movement of the vehicle will cause the drum to wind the lifting cable 19, and when the shock is raised to a suitable height, the vehicle is stopped and the standard 13 turned to bring the shock to the proper point of deposit, and thereupon, the operator unclutches the drum by throwing the lever 41 outwardly for the purpose of permitting the drum to unwind under the weight of the shock to deposit the latter.

For conveniently turning the standard, the stem is provided with a sprocket wheel 51 at a suitable point around which passes a sprocket chain 52 that is actuated by a small sprocket wheel 53 mounted on the outer end of the beam 11 and arranged on a crank shaft 54 so that the operator, while standing at one side of the vehicle, can manipulate the crank to swing the boom 16 back and forth. The ends of the boom are placed on the standard by means of braces 55 that have their lower ends secured to the standard and their upper ends secured to the clips 56 and clamped to the extremities of the boom.

It may be desirable for some work to operate the drum 36 by hand, and for this purpose, a crank shaft 57 is mounted in bearings 58

on the body of the vehicle, and arranged on the shaft is a sprocket wheel 59 that operates through a sprocket chain 60 on a sprocket wheel 61 for turning the drum, there being a crank 62 on the ends of the said shaft for turning the same. As shown in Fig. 3, the sprocket wheel 61 is mounted to rotate freely on the sleeve 47 and carries a spring-pressed pawl 63 which coöperates with a ratchet wheel 64 to turn the drum. The sprocket wheel 61 is held between a shoulder 65 on the sleeve 47 and the ratchet wheel 64 and moves with the drum 36 when the latter is shifted longitudinally for clutching and unclutching it to and from the rear axle. The teeth 66 of the ratchet wheel 64 are so shaped that they will ride under the pawl so that the drum 36 can freely rotate with the rear axle when a shock is lifted through the movement of the vehicle, and furthermore, when the drum is rotating with the rear axle, the sprocket wheel is idle and stationary. When the crank shaft 57 is turned for lifting a shock by hand, the pawl 63 will engage the ratchet wheel 64 and thus turn the drum for winding the cable 19 and when the shock is to be lowered, the operator releases the crank 62 so that the weight of the shock will cause the drum to unwind. In order to let the shock down gradually when the machine is operated by hand, a braker is employed. This braker consists of a drum 69 on the shaft 57, and a band 70 arranged to frictionally grip the drum, the band being actuated by the lever 71.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while we have described the principle of operation of the invention, together with the apparatus which we now consider to be the best embodiment thereof, we desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims.

Having thus described the invention, what we claim is:—

1. In a shock loading machine, the combination of a wheel-supported frame, a rotatable axle, a rotatable standard mounted on the frame, an arm on the standard, a lifting element carried by the arm, a winding drum on the axle and connected with the element, means for clutching the drum to the axle, and means for rotating the drum when the latter is unclutched from the axle.

2. In a shock loading machine, the combination of a frame, wheels supporting the same, an axle driven by the wheels, a drum mounted on the axle, a device for clutching the drum to the axle and depending upon longitudinal movement of the drum, a rota-

table standard on the frame, an arm on the standard, a lifting element connected with the drum and guided on the standard and arm, and means for shifting the drum to clutch and unclutch the same with respect to the axle.

3. In a shock loading machine, the combination of a frame, wheels supporting the same, an axle driven by the wheels, a winding drum on the axle, means for clutching the drum to the axle for rotating the drum by movement of the machine, a removable standard on the frame, a lifting element connected with the drum and guided on the standard, and manual means for rotating the drum independently of the axle.

4. In a shock loading machine, the combination of a frame, a tubular standard rotatably mounted thereon, a tubular arm on the standard, a lifting cable passing through the tubular arm and standard, a winding mechanism on the frame, and a mechanism for turning the standard.

5. In a shock loading machine, the combination of a frame, a socketed member thereon, a standard having its lower end rotatably mounted in the socket of the said member, braces for cooperating with the socket to hold the standard upright, an arm on the standard, a lifting cable guided on the arm and standard, pulleys on the standard for the cable, one pulley being located at the bottom of the standard and the other nearer the said arm and a mechanism on the frame for winding the cable.

6. In a shock loading machine, the combination of a wheel-supported frame, a socketed member thereon, a tubular standard removably mounted on the frame with its lower end disposed in the socket of the member, means for bracing the upper end of the standard on the frame, a fixed arm on the frame, a lifting cable passing through the standard, means on the standard and arm for guiding the cable, and a winding mechanism for the cable.

7. In a shock loading machine, the combination of a wheel-supported frame, a tubular standard, a ball bearing for rotatably supporting the standard, means for removably supporting the standard on the frame, a tubular arm on the standard, a lifting cable passing through the tubular arm and standard, pulleys on the standard and arm for guiding the cable, and a winding mechanism arranged to be driven by the movement of the vehicle for winding the cable.

8. In a shock loading machine, the combination of a wheel-supported frame, a member on the frame having an opening, a tubular standard rotatably mounted in the opening, braces for holding the standard in upright position on the frame, an arm on the upper end of the standard, a lifting cable supported on the arm and passing through

the standard and through the opening of the member, a guide pulley on the member for the cable, and a mechanism mounted on the frame for winding the cable.

9. In a shock loading machine, the combination of a supporting frame, a tubular standard thereon having an opening, a tubular boom mounted on the standard and extending from opposite sides thereon, means for bracing the boom on the standard, a lifting cable passing through the boom and into the standard through the slot thereof, guide pulleys mounted on the boom for the cable, a guide pulley on the standard at the slot thereof for the cable, means for rotatably mounting the standard, a guide pulley at the bottom of the standard for the cable, and a mechanism for winding the cable.

10. In a shock loading machine, the combination of a wheel-supported frame, an axle rotatably mounted on the frame, a winding drum on the axle, means for clutching the drum to the axle, a cross member on the frame, a tubular standard having its lower end mounted on the cross member, a tubular boom mounted on the standard, a collar in which the standard rotates and provided with a slot for permitting lateral removal of the standard, a keeper for preventing displacement of the standard through the slot, bracing members between the frame and collar, and a lifting cable passing through the boom and standard and connected with the drum.

11. In a shock loading machine, the combination of a wheel-supported frame, a rotatable axle, a drum thereon, a clutch device for connecting the drum with the axle, means for moving the drum back and forth for clutching and unclutching the same with respect to the axle, a wheel on the axle, means between the wheel and drum for driving the latter by the wheel when the axle is idle and permitting the drum to be driven by the axle when the wheel is idle, a manually actuated means for driving the wheel, a standard, an arm on the standard, and a lifting cable supported on the arm and connected with the drum.

12. In a shock loading machine, the combination of a frame, wheels supporting the same, an axle driven by the wheels, a drum on the axle, a clutch device depending upon longitudinal movement of the drum for connecting the latter with the axle, an operating means for shifting the drum and holding it in clutched or unclutched position, a wheel mounted on the axle, a ratchet mechanism between the wheel and drum, manually operated means for actuating the wheel, a standard, an arm on the standard, and a lifting element supported by the arm and connected with the drum.

13. In a shock loading machine, the combination of a frame, wheels supporting the

same, an axle driven by the wheels, a removable standard on the frame, an arm on the standard, a lifting element supported on the frame; a drum on the axle and connected  
5 with the element, a fixed member on the axle, means for moving the drum into and out of locking relation to the member, a sleeve secured to the drum, a ratchet wheel fixed on the sleeve; a driving wheel rotatable on the  
10 sleeve, a pawl on the driving wheel arranged in coöperative relation with the ratchet wheel, means for shifting the sleeve and drum and attached parts on the axle for clutching the drum to the latter, and means  
15 for actuating the said driving wheel.

14. In a shock loading machine, the combination of a frame, wheels supporting the same, an axle driven by the wheels, a removable standard on the frame, an arm on  
20 the standard, a lifting element supported on the frame, a drum on the axle and connected with the element, a fixed member on the axle,

means for moving the drum into and out of locking relation to the member, a sleeve secured to the drum, a ratchet wheel fixed on  
25 the sleeve, a driving wheel rotatable on the sleeve, a pawl on the driving wheel arranged in coöperative relation with the ratchet wheel, a shifting lever on the frame, a connection between the lever and sleeve for  
30 moving the latter on the drum back and forth on the axle, means for holding the lever in set position, a crank shaft on the frame, and a sprocket and chain mechanism between the said shaft and said driving  
35 wheel.

In testimony whereof we affix our signatures in presence of two witnesses.

ELLSWORTH N. SMITH.  
CHARLIE WALKER.

Witnesses:

CHARLES HAMMONS,  
WILLIAM H. LARGE.