G. Cook,

Capstan.

No. 32,414. Patented May 28, 1861.

Fig: 1.

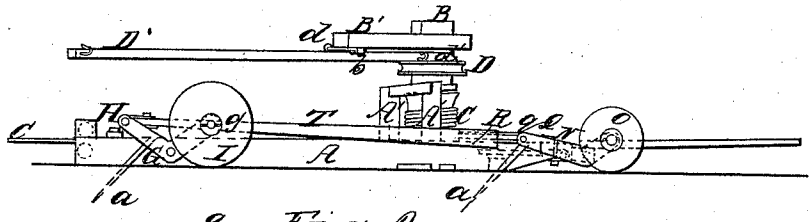


Fig: 2.

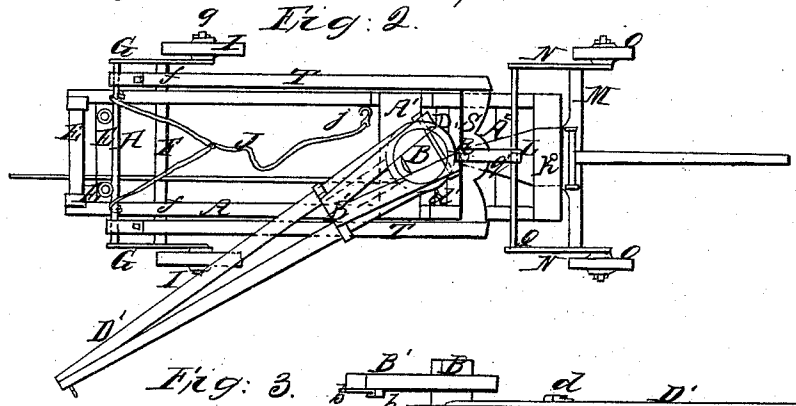


Fig: 3.

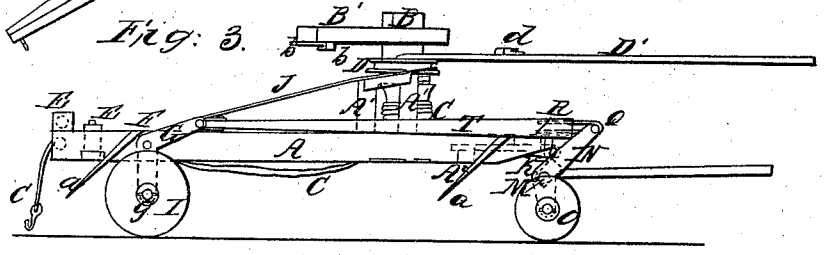
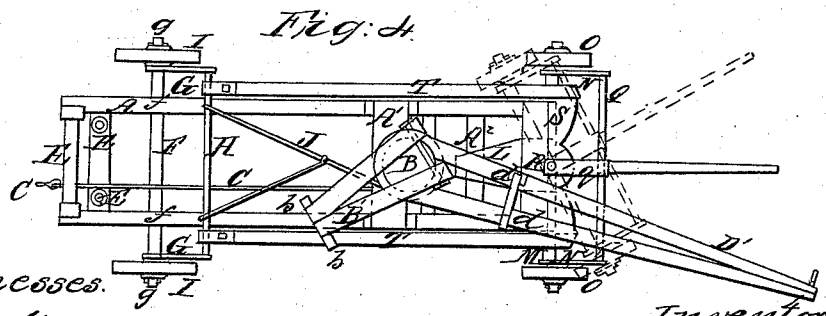


Fig: 4.



Witnesses.
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AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

# UNITED STATES PATENT OFFICE.

GEORGE COOK, OF BRISTOL STATION, ILLINOIS.

## PORTABLE CAPSTAN.

Specification of Letters Patent No. 32,414, dated May 28, 1861.

*To all whom it may concern:*

Be it known that I, GEORGE COOK, of Bristol Station, in the county of Kendall and State of Illinois, have made a new, useful, and important Improvement in Portable Capstans; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation showing the machine anchored in the ground, with the parts in condition for use as a capstan. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation, showing the machine supported upon its wheels, with the parts in condition for elevating the same into such position. Fig. 4 is a plan view of the same.

Similar letters of reference indicate like parts in all the drawings.

In operating mole plows and performing many operations connected with the improvement of land, lifting or removing heavy masses, etc., with small teams, a capstan is desired which shall rest firmly upon the ground and shall anchor itself very strongly thereto when required, and shall be capable of being easily transported from one locality to another. My invention is intended to supply this want. Capstans have before been constructed or proposed which were provided with wheels, and some such have allowed the forward axle to swivel to some extent while in the act of transporting the machine and have also provided for winding and unwinding the rope when required without revolving the long and heavy bar to which the cattle are attached, but both these objects are effected much better in my machine.

The nature of my invention consists, first,—in arranging a swivel joint in an otherwise rigid connection between the means for elevating the front of the machine and the means for elevating the rear of the machine, so that when the machine is fully elevated and the wheels are fully in position for supporting it, the said swivel joint is brought directly in line with the king bolt, so that the front axle and its attachments may be swiveled freely without detaching or otherwise disturbing the connections.

The nature of my invention consists second, in the combination and arrangement of a main drum and arm with a second drum fixed to a separate main lever or arm and with certain means of connecting the said arm on the main shaft with the said main lever and of disconnecting the same at will, so that the main lever and the main shaft can be connected by simply raising the former by the hand and can be readily disconnected to allow of either reeling off the main rope from the main shaft or of operating a secondary rope by winding it upon the secondary drum or spool independently of the main rope.

To enable others skilled in the art to make and use my invention I will now proceed to describe its construction and operation by the aid of the drawings.

A is the frame or body of the machine and *a* ordinary anchors projecting downward therefrom at an angle by which it may be held in place when lowered. A′ is a rigid framing mounted thereon.

B is a stout vertical shaft so supported in A A′ that it is free to turn.

B′ is a short arm rigidly fixed on the top of B, and armed with a crooked iron *b*, *b*, at its outer extremity as represented. Turning B, by means of its arm B′ or otherwise, winds up or unwinds the main rope C. To this rope C a mole plow, not represented, or any other object to be operated, is attached. The lower part of B, or that part between A and A′, is therefore the main rope-receiving part or windlass of the machine.

A secondary rope receiving part or windlass, is provided as follows:—A suitable spool or drum D is fitted loosely around B above A′ so that it is free to turn independently of B. To it is rigidly fixed a long and stout arm D′, to the outer extremity of which the oxen or other animals may be hitched. This arm D′ is adapted by means of *d d* to be connected to and disconnected from B′ at will, *d d* being an iron

crooked as represented and firmly fixed to D′. The animal or animals attached to D′ travel around the machine and thus rotate D′ and D, and this motion is communicated to B′ and B or not according as the crooked irons or catches *b* and *d* are connected or disconnected. A connection of these is easily made by simply elevating D′ by the strength of the attendant while it is being rotated, and the same is again disconnected when desired by simply stopping and backing the animals and again lifting the arm D′ to allow the hooks *b* and *d* to separate. E represents rollers or sheaves which guide the rope C as it is drawn in and paid out.

A shaft F extends across and is loosely held in suitable bearings *f* near the rear end of the machine. On each end is rigidly fixed a bent lever G. These levers are again rigidly connected by a cross bar H extending across above A as represented. On the lower or opposite ends of these levers G are mounted on pins *g* the stout wheels I, I. These wheels are free to turn on *g*, *g*. A rope J, entirely distinct from the rope C, is attached to the cross bar H and is provided at its other end with a hook *j*. The drum or spool D is provided with a corresponding eye *d′* to which *j* may be connected at pleasure. The use of this rope will be explained after the connection of the rear wheels and their levers with the front wheels and their levers has been considered in detail.

K is a king-bolt by which is connected to the front of the frame A a swiveling part L which extends back and plays over a cross bar $A^2$. To the front of L is hinged a transverse bar M which serves in lieu of a forward axle. A tongue is hinged to this bar M in the manner represented and to this tongue the cattle are hitched to haul the machine from one place to another. On the ends of M are fixed bent levers N carrying wheels O. These levers are similar to the levers G and are rigidly connected by a cross bar Q. From the middle of Q a forked arm *q* extends backward toward the rear of the machine with the ends of the forks pierced to carry a vertical pin R as represented. A flat transverse piece S is mounted in the fork so as to turn on the pin R. To the ends of R are attached stout rods T, T, which extend horizontally backward on the outside of A′ and are connected to the transverse bar H by straps passing around the same as represented.

The frame F, G, H, and wheels I, previously described, serve to elevate and carry the rear part of the machine, the frame M, N, Q, and wheels O, serve to elevate and carry the forward part of the machine, while the fork *q*, pin R, cross piece S, and rods T, T, connect these frames so that both are operated together. The length of the forked part *q* and of the rods T, T, is such that when the machine is elevated to its full extent, as shown in Figs. 3 and 4, the swivel joint produced by the union of *q* with S by the pin R is directly over the king-bolt K and consequently in line with it. This arrangement allows the frame carrying the forward wheels O O to be turned freely in various directions relatively to the machine, like the ordinary forward axle of a wagon, while the machine is in this, the proper condition for being transported, without requiring any part to be detached or adjusted in any special manner for the purpose, and leaving the connection always complete and entire between the forward and rear apparatus.

The method by which the power of the team is applied through the capstan itself to raise the machine will be now readily comprehended. The secondary rope J attached permanently to the cross piece H (being by preference divided into two and attached at or near each end as represented to diminish the strain thereon) is provided with a hook *j* adapted to connect at will with the eye *d′* on the secondary spool or drum D. When it is desired to elevate the machine upon its wheels, D′ is disconnected from B′ so that the turning of D′ will not operate the rope C. The hook *j* is then connected to *d′* without disconnecting the animals from the main lever D′, they being merely stopped in their circuit while this operation is performed and again started as before. The revolution of D′ now shortens the rope J by winding it upon D, and thus lifts with great force upon H which in rising causes the four levers G and N, N, to be operated and the entire machine to be supported upon its wheels I, I, O, O, as shown in Figs. 3 and 4. When it has been properly raised and hauled to the locality where it is next to be operated, the rope J is readily overhauled by hand and thrown off, allowing the machine to fall by gravity upon its anchors *a* when after raising D′ to make a connection with B′ the rope C may be again operated as before.

It is of course obvious that the shaft B and the short arm B′ may be easily turned backward to unwind C at any time and that its revolution involves very little difficulty when compared with that which would attend the whirling around of the long lever D′ or the unshipping of the same and its refitting in any ordinary manner at each operation.

Having now fully described my invention what I claim as new therein and desire to secure by Letters Patent is—

1. So arranging a swivel joint R in the otherwise rigid connection *q*, S, T, T, between the means F, G, H, I, for elevating

the rear of the machine and the means M, N, O, P, for elevating the front of the machine, that when the machine is fully elevated upon its wheels, the said joint R is over, or in line with, the king-bolt K, all substantially as and for the purpose herein set forth.

2. The combination and arrangement of the eye *d* hook *j* and rope J or their equivalents, with the main spool or drum B and arm B′ and with the small drum D and main lever D′ so as to operate in the manner herein set forth.

GEORGE COOK.

Witnesses:
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James W. Keeler.