

(No Model.)

2 Sheets—Sheet 1.

A. F. JONES.

TANNERY HOIST.

No. 375,938.

Patented Jan. 3, 1888.

Fig. 1.

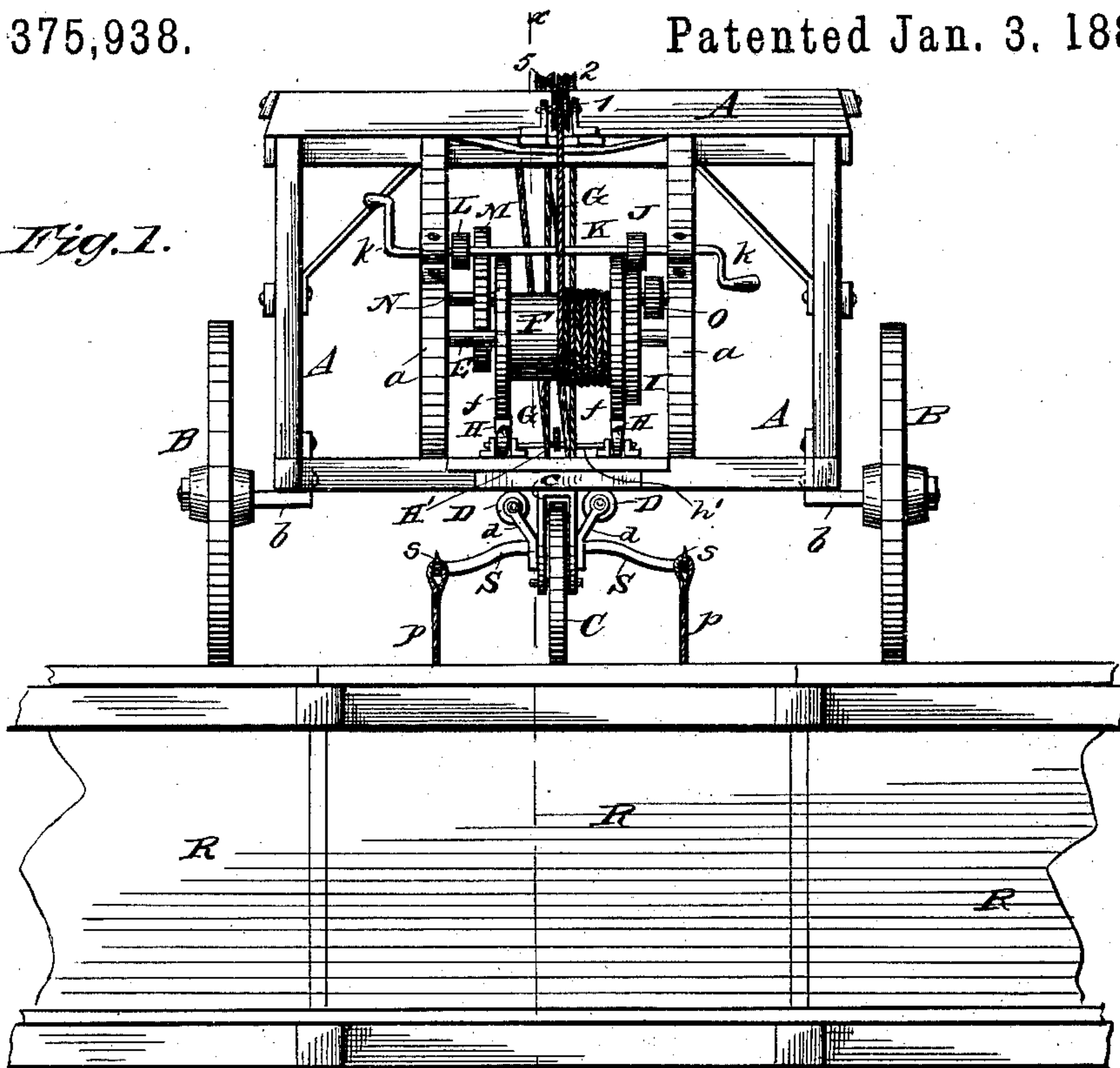
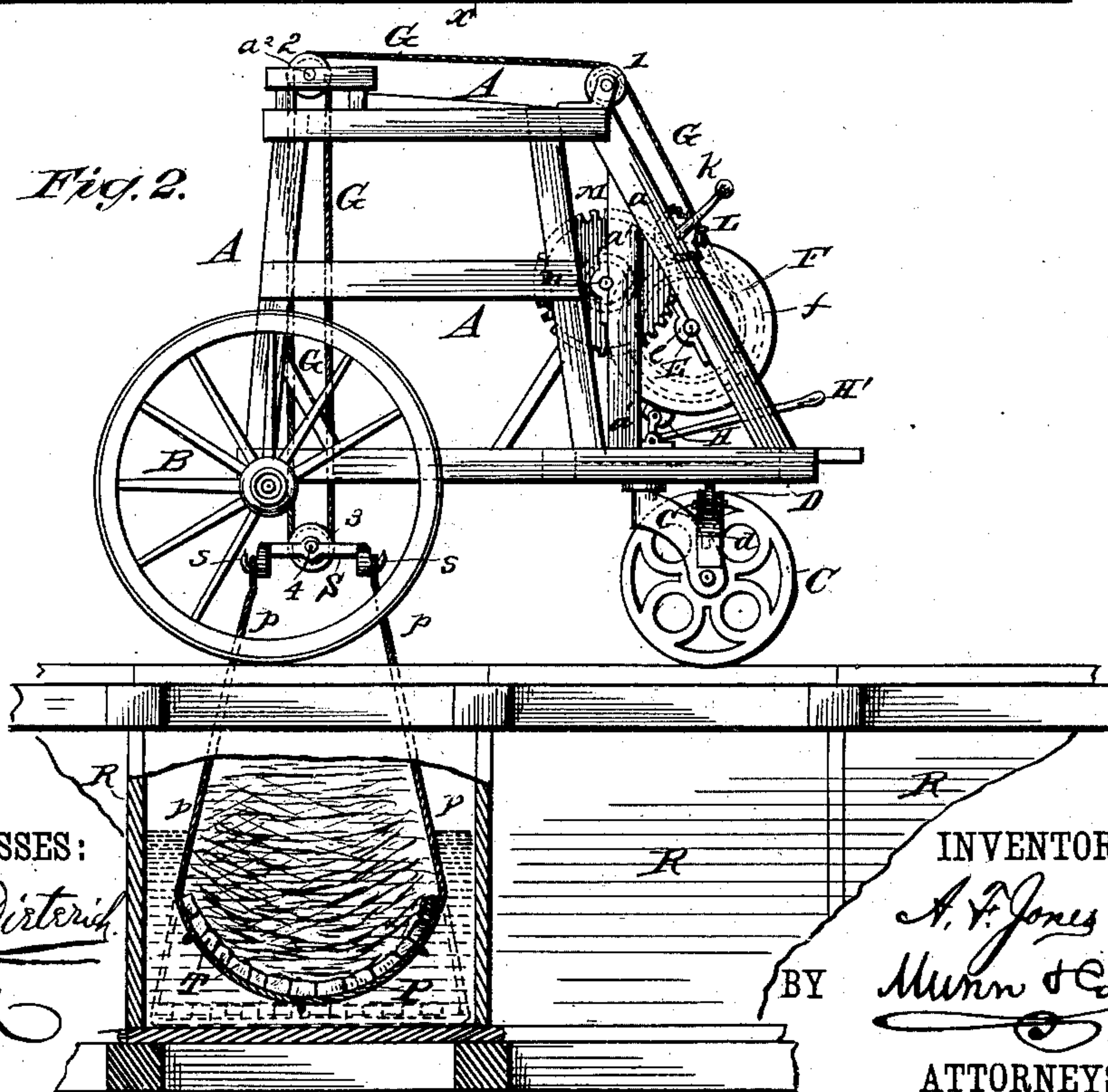


Fig. 2.



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Fig. 3.

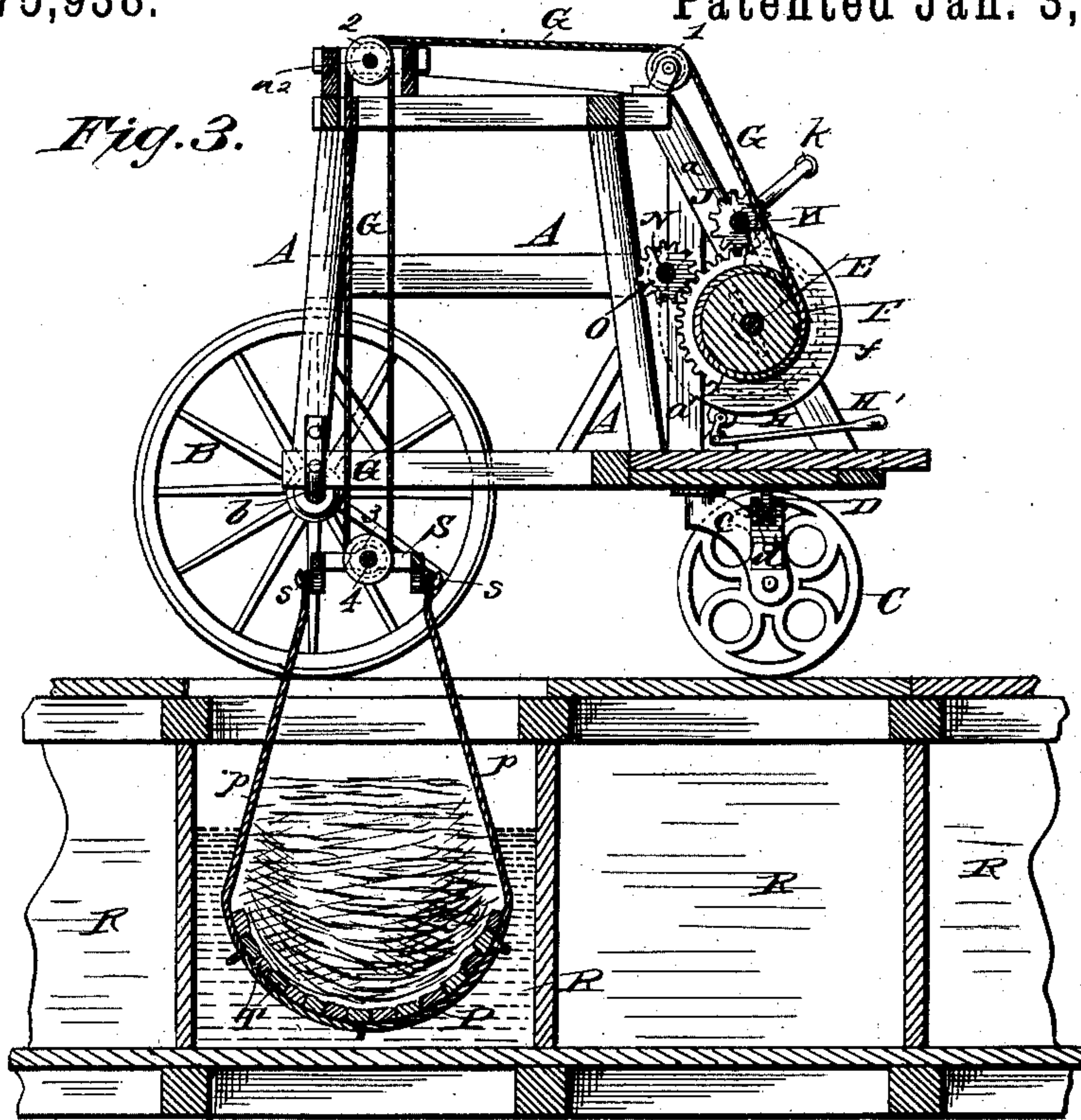


Fig. 5.

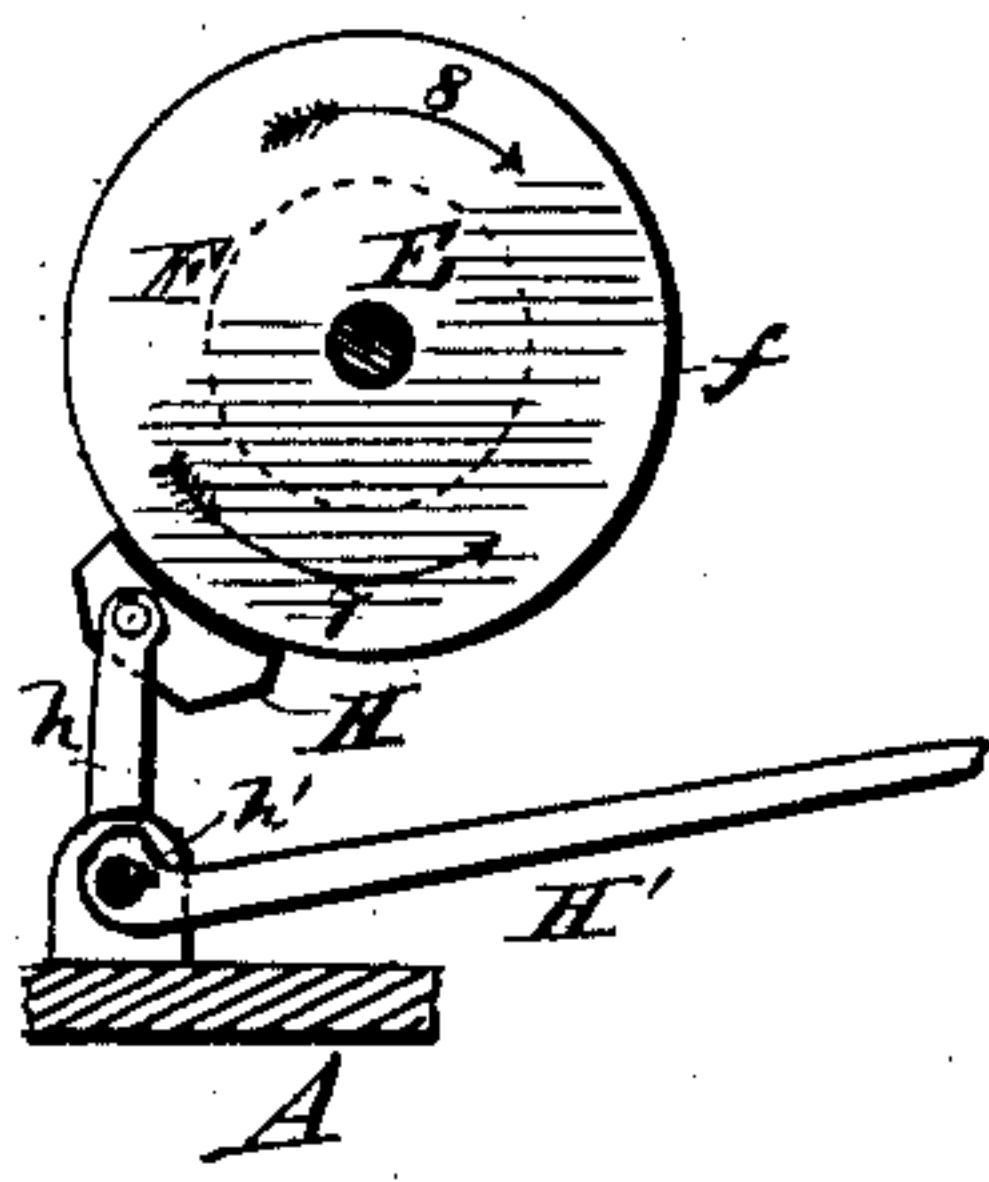
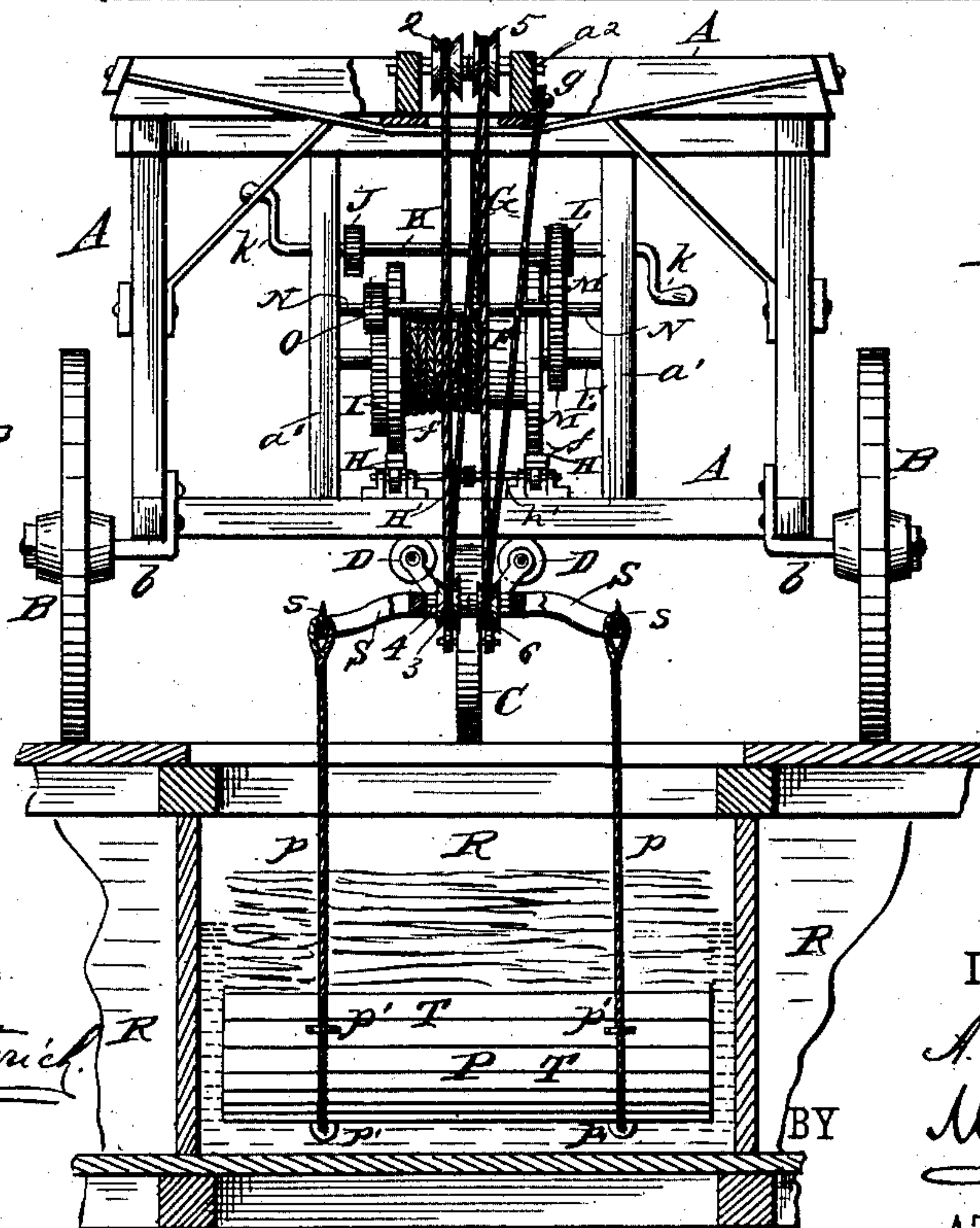


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBERT FRANCIS JONES, OF SALEM, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOSEPH H. POOR, OF SAME PLACE.

TANNERY-HOIST.

SPECIFICATION forming part of Letters Patent No. 375,933, dated January 3, 1888.

Application filed September 21, 1887. Serial No. 250,303. (No model.)

To all whom it may concern:

Be it known that I, ALFRED FRANCIS JONES, of Salem, in the county of Essex and State of Massachusetts, have invented a new and Improved Tannery-Hoist, of which the following is a full, clear, and exact description.

My invention relates to a hoisting and conveying apparatus adapted more particularly for use in tanneries for lifting hides from lime, soak, handler, and layaway-pits, and depositing them in other vats or elsewhere; and the invention has for its object to provide a simple, substantial, and efficient machine by which this work may be accomplished with economy of time and labor, and prevent damage to the hides ordinarily caused by handling them with the sharp-pointed hooks commonly used.

The invention consists in certain novel features of construction and combinations of parts of the machine, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a rear view of my improved tannery-hoist with the sling in one of the tan-vats. Fig. 2 is a side view of the hoist with the vat partly broken away to show the sling which is partly raised in the vat. Fig. 3 is a vertical sectional side elevation of the hoist, sling, and vats, taken on the line *xx* in Fig. 1. Fig. 4 is a front view of the hoist, sling, and vat, partly broken away and in vertical section; and Fig. 5 is a detail view of the hoist-brake.

The hoist is made with a strong timber frame, A, which is mounted on two opposite front wheels, B B, and a rear pilot or caster-wheel, C. The wheels B B are journaled on stub-axles *b b*, bolted to the frame, and the wheel C is journaled in a forked arm or stirrup, *c*, which is journaled by a vertical stud to the frame A, and to this stirrup are fixed the lower ends of a pair of arms, *d d*, at the upper ends of which are journaled wheels or rollers D D, which bear on the under side of the frame A, or on a metal plate fixed to the frame, and thus give a more substantial bearing or support to the rear end of the frame than the caster-wheel C alone would afford.

On the two slanting rear bars or uprights, *a*, of the frame A, is journaled, in suitable boxes, *e*, a shaft, E, which carries fixedly a drum, F, receiving the hoist-rope G, and to the shaft or drum are fixed a pair of disks or plates or wheel-rims, *f f*, which may be the end plates of the drum, and to which the brake-shoes H H are applied in a manner presently explained, to prevent running down of the loaded sling. A gear-wheel, I, is fixed to the drum or the disk *f* at one end of it, or to the drum-shaft, and is adapted to be engaged by a pinion, J, fixed to a shaft, K, journaled in boxes on the frame-bars *a a*, and provided with cranks *k k*, by which to turn it to apply power to the hoisting mechanism. The shaft K also has fixed to it a pinion, L, which is adapted to mesh with a gear-wheel, M, fixed to a shaft, N, journaled in boxes *n*, fixed to opposing uprights *a' a'* of the frame A, and said shaft N also carries a pinion, O, which is fitted to it by a spline or feather connection to allow it to be slid along the shaft by hand to engage it with the gear-wheel I on the drum or drum-shaft, and to disengage it therefrom at will.

It is obvious, when the shaft K is slid endwise in its bearings to disengage its pinion L from the gear-wheel M and simultaneously engage its pinion J with the gear-wheel I, and when the pinion O on shaft N is disengaged from the gear-wheel I, that upon turning the crank-shaft K the drum F will be rotated through the medium of the gears J I to wind the rope G onto it and hoist the loaded sling P, connected to the rope, with a direct and quite rapid lifting motion, as is desirable when the sling is being first lifted in the tan-vat R; but when the sling is lifted nearly out of the vat a greater power is required to hoist it clear of the vat, and such power is secured by sliding the shaft K endwise to disengage the gearing I J and to engage the pinion L with the gear-wheel M, and when the pinion O is slid on its shaft N to engage the gear-wheel I and the crank is turned the drum F will be turned to wind the rope G onto it more slowly through the medium of the gearing L M O I, which thus double gears the crank with the drum and allows the loaded sling to be lifted easily from the vat.

The hoist-rope G passes from the drum over a pulley, 1, thence to a sheave, 2, on a shaft, a^2 , journaled on the frame A, and thence downward to and beneath a sheave, 3, on a shaft, 4, held to a frame, S, having hooks s, four in all, and onto which eyes on the four ends of the two ropes p of the sling P are hooked when the sling is to be raised from the vat. From the sheave 3 the rope G passes to and over a sheave, 5, also on the frame-shaft a^2 , and thence downward to and beneath a sheave, 6, on the sling-frame shaft 4, and thence upward to the frame A, to which the end of the rope is fastened at g in any approved way. The sheaves 2 3 5 6 constitute with the rope G a double block-hoist, which facilitates lifting of the load.

The brake-shoes H are connected to arms h, which are fixed to a shaft, h' , journaled on the frame A below the hoisting-drum F, one shoe being arranged for action on each disk f at the drum. A lever, H', is fixed to the shaft, and when said lever is lifted it throws the shoes H away from the disks f, to allow the load to run down, while the drum turns in direction of the arrow 7 in Fig. 5 of the drawings; but when the lever H' is released or left untouched any tendency of the load to run down will be instantly checked by the automatic binding of the brake-shoes H against the disks f, as the lever H' normally throws the shoes against the disks, and the distance between the bearing-faces of the shoes H and the shaft h is very little longer than the space between the shaft and the peripheries of the disks; hence the brake will be self-acting, positive, and reliable, and will hold the load at any point, or whenever the motion of the crank-shaft K in direction of the arrow 8 in Fig. 5 is stopped. The lowering of the load may be controlled by the pressure of the hands on the lever H', after the lever has been lifted to unlock or release the brake, as will readily be understood.

The sling-frame S, which is suspended from the pulleys 3 6 by the shaft 4, is preferably made of metal and in general rectangular form, and comprises two parallel side bars, to the ends of which the hooks s are fixed, and two cross-bars connecting the side bars, and on which the shaft 4 has its bearings.

The main portion or floor P of the sling, which is suspended from the frame S by the ropes p p, comprises a series of plates or planks, T, preferably of green hard wood, which will be sufficiently heavy to sink to the bottom of the vat R, and all the planks, when laid edge to edge and held to the ropes p by staples p', or other devices, will be about as wide as the vat, to entirely cover its bottom and receive all the hides placed in the vat in various conditions and with varying liquids necessary to the proper tanning of the hides at different stages of the process. The normal position of the sling at the bottom of the vat is indicated in dotted lines in Fig. 2 of the drawings.

It is obvious that when the sling is lifted, with its load of hides, by the hoisting mechanism, the side edges of the flexible sling-floor

will lift first from the bottom of the vat, and thus avoid suction thereat, and will allow easy lifting of the loaded sling in and from the vat.

When the sling is in the vat and the hides are packed upon it, the eyes or loops at the free ends of the sling-ropes p will be caught onto hooks or other detents at the top of the vat, and when the hides are to be lifted from the vat and carried to another vat, or elsewhere, the hoist above described will be wheeled into position above the vat and the sling-ropes p will be caught onto the hooks s of the sling-frame S, whereupon the direct and back geared hoisting mechanism will be operated successively to lift the loaded sling from the vat in the manner above described, and when the load is lifted the brake will hold it up, while the entire apparatus is pushed by the attendants turning the larger wheels, B, by hand, the caster-wheel C automatically swinging around to allow very short turning of the hoist anywhere desired for depositing the load, which may be readily and safely accomplished by first lifting and then controlling the lever H' of the brake mechanism, as will be clearly understood from the aforesaid description.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The hoisting-machine herein described, constructed with a frame, A, carrying a hoisting drum and rope and mechanism for operating them and supported on main wheels B B, and a caster-wheel, C, substantially as herein set forth.

2. The hoisting-machine herein described, constructed with a frame, A, carrying a hoisting drum and rope and mechanism for operating them and supported on main wheels B B, a caster-wheel, C, and auxiliary wheels D D, journaled to the caster-wheel stirrup, substantially as herein set forth.

3. A hoisting-machine constructed with a frame mounted on wheels and carrying a hoisting drum and rope and mechanism for operating them, and a sling-frame, and sling connected to the said sling-frame, the hoisting-rope passing around pulleys hung in said sling-frame, substantially as herein set forth.

4. A hoisting-machine constructed with a frame mounted on wheels and carrying a hoisting drum and rope and mechanism for operating them, a sling-frame hung to the rope, and a sling comprising a flexible floor, and ropes connected thereto and adapted for connection to the sling-frame, substantially as herein set forth.

5. The combination, in a hoisting-machine, of a frame, A, shafts E N, and a crank-shaft, K, journaled on the frame, a drum, F, and gear-wheel I on the shaft E, a gear-wheel, M, and sliding pinion O on the shaft N, and pinions J L on the shaft K, which is movable endwise on the frame, substantially as described, for the purposes set forth.

6. The combination, in a hoisting-machine,

and with a frame, A, a hoisting-drum, F, a rope, G, thereon, and friction disks or plates *ff*, fixed to the drum or its shaft, of a shaft, *h'*, journaled on the frame, arms *h*, fixed thereto and carrying brake shoes H H, adapted to the disks *ff*, and a lever, H', fixed to the shaft *h'*, all arranged for automatic application of the brake and release of it by pressure on the lever, substantially as herein set forth.

7. In a tannery-hoist, the combination, with a wheeled frame carrying a hoisting drum and rope and mechanism for operating them, of a sling-frame, S, carrying one or more sheaves beneath which the bight of the hoist-rope passes, and provided with hooks *s*, adapted to receive ropes of a hide-sling, substantially as herein set forth.

8. In a tannery-hoist, the combination, with a wheeled frame carrying a drum and rope and mechanism for operating them, and a sling-frame, S, carrying one or more sheaves beneath which the bight of the hoist-rope

passes, and provided with hooks *s*, of a flexible sling comprising a floor made of plates or planks T, connected to ropes *p*, adapted for connection to the frame-hooks *s*, substantially as herein set forth.

9. In a tannery-hoist, a sling made with a flexible floor fitting in the vat and provided with hoist-ropes, said floor consisting of a series of planks or members, each independently yielding, substantially as herein set forth.

10. In a tannery-hoist, a sling made with a floor formed of plates or planks T, laid parallel edgewise, and ropes connected to the planks and adapted for connection to a hoisting frame or device, said plates or planks being each independently yielding, substantially as herein set forth.

ALBERT FRANCIS JONES.

Witnesses:

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