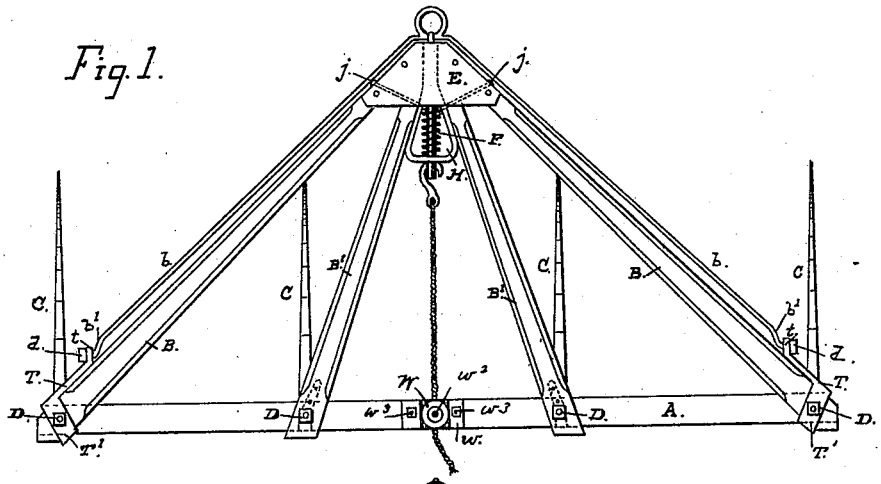
(No Model.)

J. T. WATKINS.

HORSE HAY FORK.

No. 306,667. Patented Oct. 14, 1884.

Fig. 1.



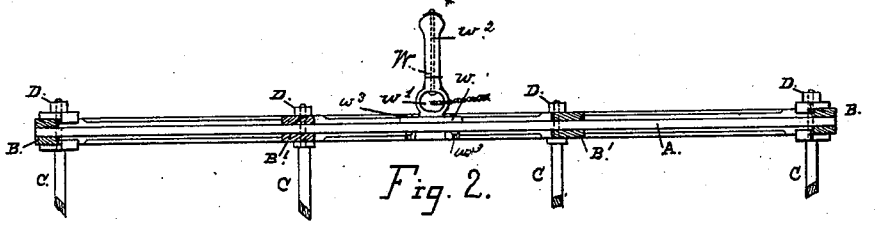


Fig. 2.

Fig. 3.

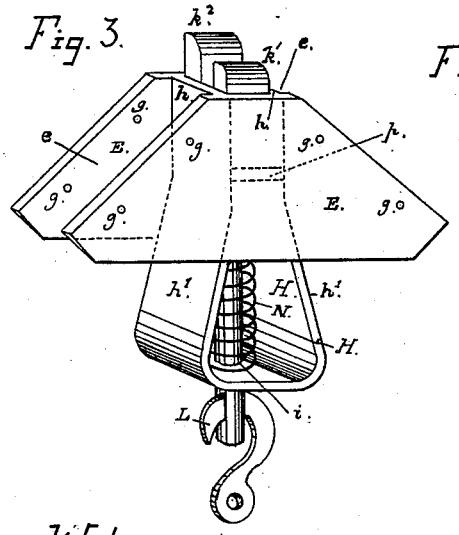


Fig. 4

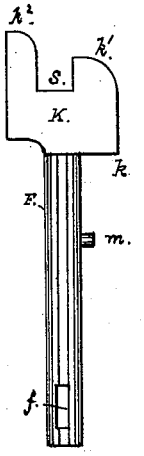
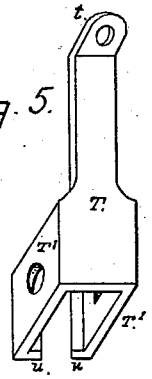


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES T. WATKINS, OF SAN FRANCISCO, CALIFORNIA.

HORSE HAY-FORK.

SPECIFICATION forming part of Letters Patent No. 306,667, dated October 14, 1884.

Application filed February 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. WATKINS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Horse Hay-Forks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My improvements in horse hay-forks comprise a certain novel construction and combination of parts to produce a cheap, strong, and durable implement.

The following description explains the nature of these improvements and the manner in which I proceed to construct, apply, use, and carry out the same.

In the drawings referred to, Figure 1 is a finished fork ready for use; Fig. 2, a view taken from the bottom or under side of the frame or head. Figs. 3, 4, and 5 are detail views of the metal parts of the head on a larger scale.

One novel and useful feature possessed by my improved fork is its quality or capability of being separated into parts for storage and shipment, and to be put together again for use without the need of skilled labor, while another feature is the simplicity of construction of the parts that enables repairs to be readily made by an ordinary workman. The frame to which the tines are fixed, commonly termed the "head" of the fork is made of a single straight flat bar of steel, A, and inclined wooden bars B B′, called the "timbers" when on the outside, and "braces" when on the inside, of the frame. The lower ends of these timbers are slotted, and the steel bar A being let into the slot at least the full depth of the bar, the tines C C are carried through the timbers and bar and secured by nuts D at the back of the head. Both timbers and braces are made with a gradual taper from the bottom to the top of the frame, at which part they meet and enter a block or casting, E, of triangular shape, which has sockets *e e* to receive the ends of the timbers, and a recess with bearings for the spring-bolt F. This block or casting I prefer to cast in one piece. It consists of two outside plates, E E, of triangular form, set at a distance apart corresponding to the thickness of the timbers to be taken in between them, and having bolt-holes *g g* in line through which bolts pass to secure the timber. Between the plates are two webs, *h*, joining them together and inclosing a square space or recess through the center of the casting to hold the catch F. These webs are partitions formed by the upper portion of a loop-shape plate, H, placed between the side plates, with the loop extending below the lower edges. At this part the plate approaches the form of a triangle, a hole, *i*, being made in the flat or bottom part of the loop to let the bolt F through, while at the upper part the two sides are brought together to form the rectangular socket or recess for the head of the catch. The plates or side pieces, E, and the loop-shape plate H, joining them together, are readily cast in one piece. The inclined sides *h′* of the loop H have the same slant as the braces or inner timbers of the frame, and the ends of the two timbers B′, being placed on either side of the brace or triangular loop, are secured in the casting between the outside timbers, B, and the webs *h h*, as in a socket. A single bolt, *j*, passed through the outside timber and through the end of the brace into the web *h*, is sufficient to hold the parts together at each side. The head K of the latch fits and works smoothly in the recess, while its shank is formed of a round bolt having a slot, *f*, in the lower end to receive the hook L of the tripping rope, and a pin, *m*, at a point below the shoulder for a coil-spring, N, to bear against. When the bolt is in place, the lower end extends below the bottom of the bow-shaped brace-plate, and the hook L forms a stop to limit its upward movement, the motion downward being controlled by the shoulder or bottom of the enlarged head, and a small rib or projection, *p*, cast on the inside of the recess, as shown at dotted lines, Fig. 3, for the shoulder to strike against. The spring N holds the bolt out of the top of the socket, and in raising the frame of the fork into upright position the bail *b* rides over the rear lug or projection of the catch and drops into the slot *s* of the latch. The front lug, k^2, projects somewhat higher than the rear one, so that it acts as a stop to prevent the frame from swinging too far over. This construction is clearly shown in Figs. 3 and 4. The bail *b* is of ordinary construction,

except that its lower ends are carried away from the top faces of the timbers and have a return bend or offset, *b'*, at the ends to form pintles or swivel-bearings. These pass through ears *t*, fixed on the lower ends of each outside timber, and are screw-threaded to receive nut *d*. The ears are part of clamping-pieces T, each of which is composed of a top plate that lies upon the upper face of the timber, and has depending side pieces, T', that inclose the timbers between them, and extend down and under the bottom faces, thus forming straps that embrace both sides of the timbers. The heads of the outside tines are carried through the plates and receive the holding-nut on the back. The front plate has a square hole to receive the tine-shank; but the hole in the rear plate is circular to correspond with that part of the tine-shank which is screw-threaded, and passes through it to the outside. This gives a stronger construction for the suspension ears or lugs to which the bails are attached, and brings the weight and strain equally upon both sides of the timbers and bar of the head and affords a firm connection of the shank of the tine to the bar. This construction is shown in detail in Figs. 5 of the drawings. The lower edges of the side pieces are bent to embrace the timbers, as at *u*. The same character of strap may be used for the middle tines also, or single straps of the kind shown in the drawings can be employed. The handle W on the back of the head is formed of a plate, *w*, having a socket with an eye or ring, *w'*, to guide the tripping-rope, and a long bolt, w^2, screw-threaded, to receive and secure the handle. The plate is fixed to the back of the steel bar by two short bolts, w^3 w^3.

Among the advantages derived from this improved construction of hay-fork may be mentioned the compact character of the head, there being no projecting braces or stays at the back, and the manner in which it is put together enables the parts to be easily separated and packed in small compass for shipment. It is adapted, also, to be manufactured at an exceedingly low cost, and to be repaired when broken without requiring the services of a skilled workman.

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

1. In a horse hay-fork, a head or frame consisting of the metal bar A, the inclined timbers B B, and braces B' B', the timbers and braces having slotted ends into which the bar A is set, and is secured by the shanks of the tines passing through them, the end strap plates provided with side pieces that embrace and take over the timbers, and a block or casting having sockets to receive the upper ends of the inclined timbers, and provided with a center recess or chamber for a sliding catch, and holes for bolts, all substantially as herein described.

2. In a horse hay-fork of that class in which the head or frame is a triangle formed of inclined timbers running together at the top, the block or casting having outside cheek-pieces, the inside web, and the depending bow-shape plate, substantially as herein described.

3. In a horse hay-fork whereof the head or frame is a triangle, the block or casting having outside cheek-pieces, webs, bow-shaped extension, and the sliding latch working through a guide-slot in the bottom of the bow-shaped extension, and its upper end projecting above the top of the recess, substantially as herein described.

4. In a horse hay-fork, the combination of the binding-plate having the cheek-pieces, web, and bow-shaped extension, the bolt N, having the latch-head K, slot *s*, and shank F, the spring for throwing out the latch, and the stop in the recess for controlling its downward movement, substantially as herein described.

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