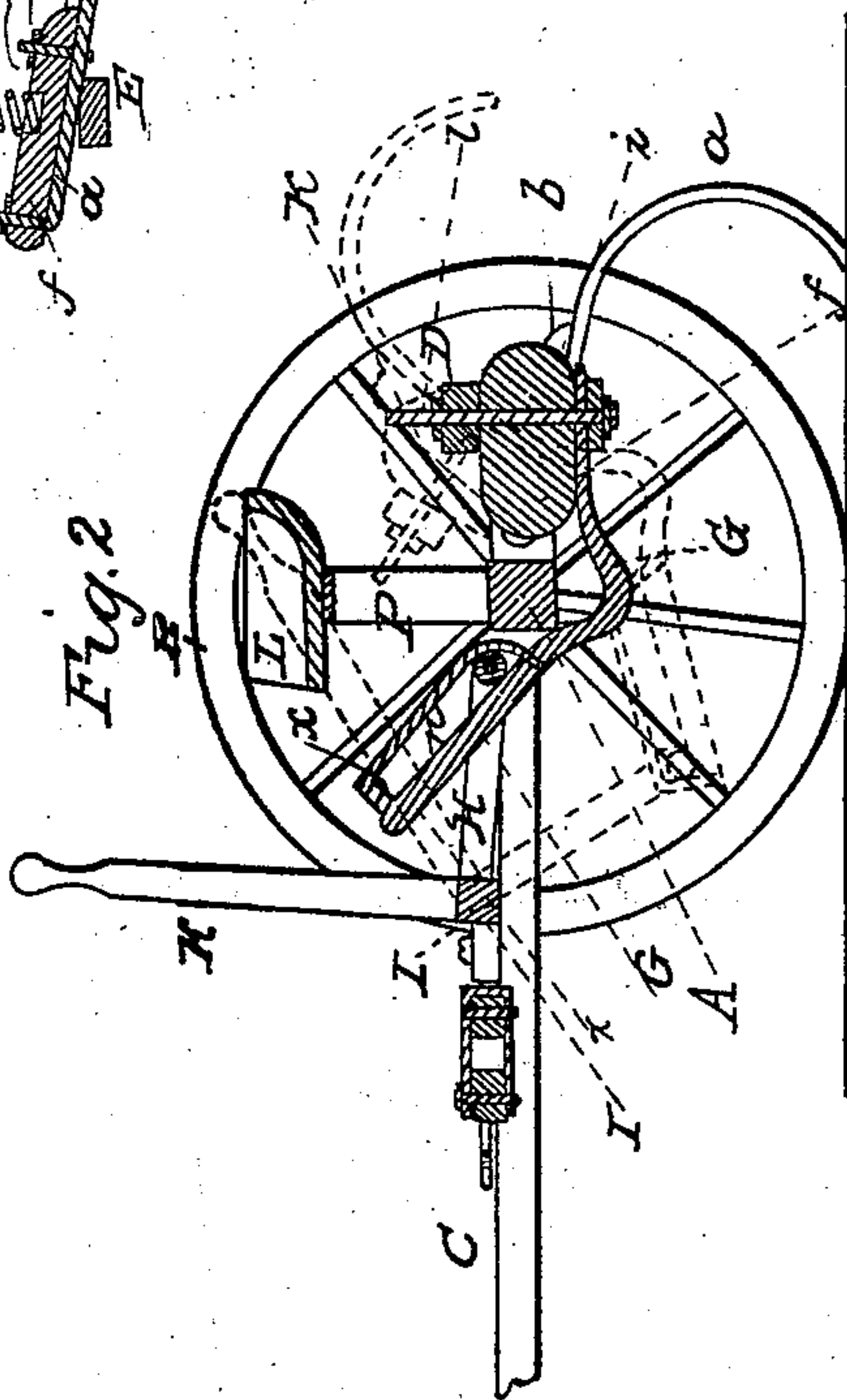
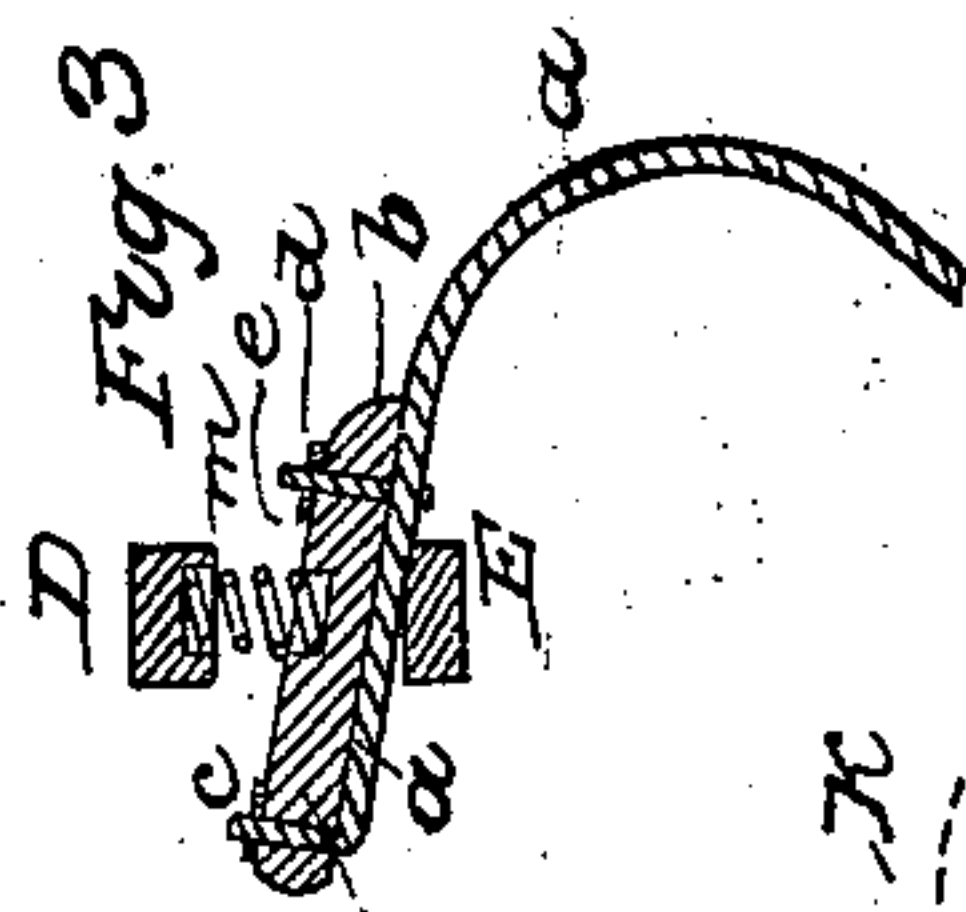
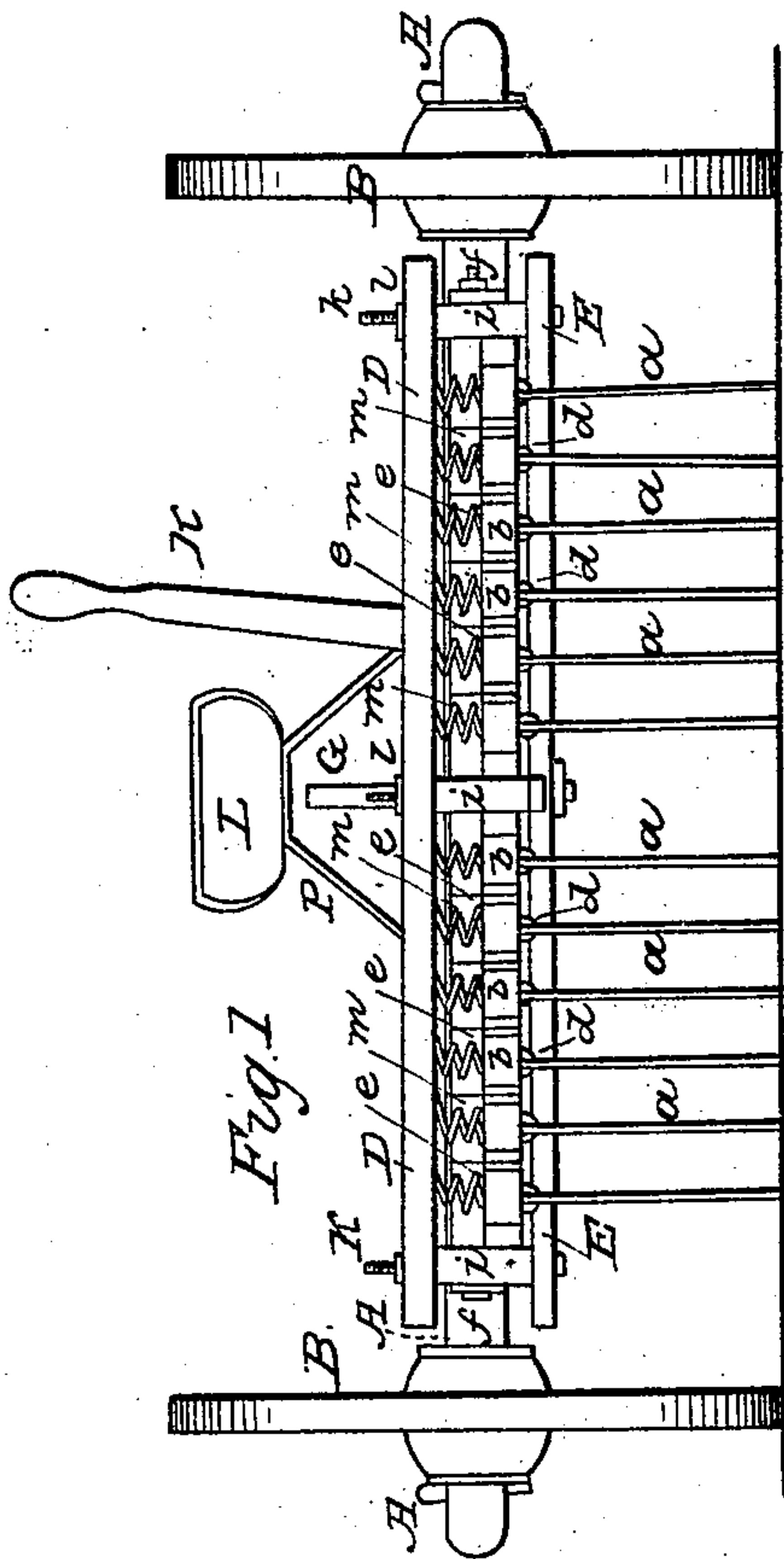
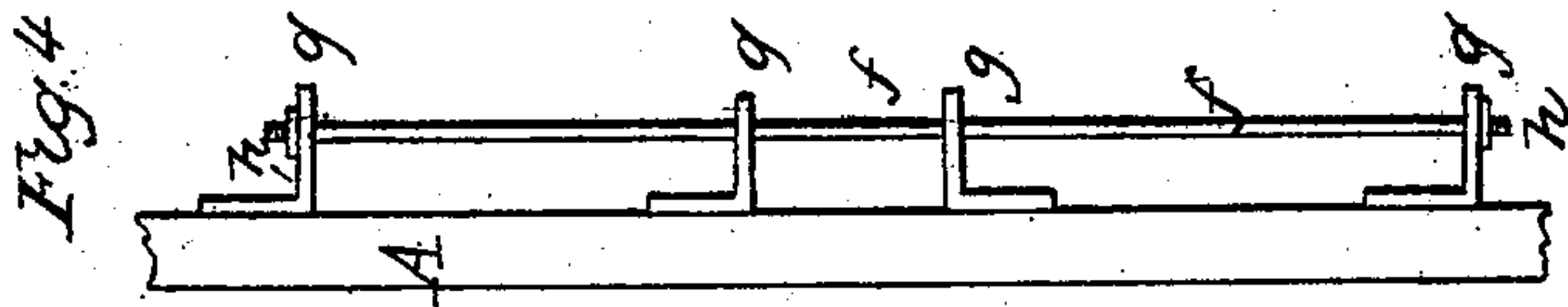


N. H. BROWN.

Horse Rake.

No. 76,597.

Patented April 14, 1868.



Witnesses  
Chas. A. Robbins  
W. J. Lambridge

Inventor  
N. H. Brown  
per his Attorneys  
Mechamacher & Stearns

# United States Patent Office.

NATHANIEL H. BROWN, OF DERRY, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF AND JOSEPH A. VEAZIE, OF BOSTON, MASSACHUSETTS.

*Letters Patent No. 76,597, dated April 14, 1868.*

## IMPROVEMENT IN HORSE-RAKES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, NATHANIEL H. BROWN, of Derry, in the county of Rockingham, and State of New Hampshire, have invented certain Improvements in Horse-Rakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a rear elevation of my improved horse-rake.

Figure 2 is a section through the centre of the same.

Figure 3 is a section through one of the teeth and the parts adjacent thereto.

Figure 4, detail to be referred to.

My invention consists in providing the iron teeth of a horse-rake with wooden heads, which are connected with the axle or rake-head, and vibrate between two bars, a spiral spring being placed between each of the wooden heads and the upper bar, so as to give the required degree of elasticity to the tooth and avoid liability of breakage.

And my invention also consists in an improved device for raising the teeth to discharge the load, and holding them securely in place when raised to their full extent, so as to allow of transportation.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the axle; B B, the wheels, and C the shafts. *a a* are the iron teeth, which are made of the spring-wire generally employed for this purpose, and are each provided with a wooden head, *b*, the end of the iron portion *a* extending up through the head *b*, where it is secured by a nut, *c*, an eye-bolt, *d*, through which the tooth passes, and a nut, *e*, serving as an additional fastening at the opposite end of the head. These wooden heads *b* vibrate on a long rod, *f*, (figs. 2, 3, and 4,) which is supported by angular brackets, *g*, secured to the axle A, a nut, *h*, at each end, serving to hold the rod in place.

D E are two bars, placed one above and the other below the heads *b*, and connected together at the ends and centre by blocks *i*, which vibrate on the rod *f*, the bars being secured to the blocks by screw-bolts *k* and nuts *l*, thus forming a vibrating frame. Between each of the heads *b* and the upper bar D is placed a spiral spring, *m*, which is held securely in position by one end fitting into a recess in the head, and the opposite end into a similar recess in the bar D above, these springs affording the required degree of elasticity to the teeth to enable them to conform to the surface of the ground, if uneven, or to rise over an obstruction, and thus prevent the liability of breakage. The bars D E, which are placed at a suitable distance apart, and connected to each other and to the axle, serve to hold the teeth in place, and still admit of the independent vibration of each tooth to the extent required.

When it is desired to remove the heads *b*, the upper bar D should be loosened, the springs *m* removed, and the rod *f* withdrawn, but any one of the iron teeth *a* may be easily detached from its wooden head by removing the nuts *c e* and bolt *d*.

The wooden heads *b* above described, possess many advantages, as they admit of the teeth being secured to the axle in a strong and durable manner, and afford perfect sockets for the springs, while they support the wire teeth *a*, prevent their having lateral motion, and allow of their being easily removed and replaced.

I will now proceed to describe the device by which the teeth *a* are raised from the ground and the load discharged. G is a bent arm or lever, which is rigidly secured to the bar E and centre-block *i*, and is provided at its forward end with a long slot, *n*, in which works a roll, *o*, on a bell-crank, H, attached to a shaft, I, which is vibrated by means of a handle, K, extending up into a suitable position to be operated from the seat L, which is supported on a brace, *p*, secured to the axle.

When the handle K of the bell-crank is drawn towards the operator, the teeth *a* will be raised to discharge the load, and on drawing the handle still further back in the same direction, so as to raise the teeth to their full extent, as seen in red in fig. 2, they will be held securely in that position, ready for transportation.



This is effected by making the lever G of such length that when depressed, as seen in red, fig. 2, the bell-crank will have passed its "centre," in which position the weight of the teeth acting upon the crank will tend to hold the parts in place, or if the lever G is of a little less length, a depression or notch, *x*, made at the extremity of the slot for the reception of the roll *o*, will cause the parts to remain in the position represented in red. This depression, however, will not be required if the lever G is made of a sufficient length to allow the bell-crank to be carried past its "centre."

When the teeth are elevated to their full extent, they cannot be forced down until the handle K is moved slightly forward, when they will readily drop to their working position, and by pressing the handle forward while the rake is in operation, the teeth may be caused to press more firmly on the ground when uneven, or when the wheels are passing over obstructions.

I know that wire teeth with wooden heads have been used in horse-rakes, but differently constructed and arranged from mine, and I disclaim the same so far as they are shown in the forfeited application of John A. Hooper, ordered for issue, August 5, 1864.

*Claims.*

What I claim as my invention, and desire to secure by Letters Patent, is—

The teeth *a*, with their wooden heads *b*, in combination with the bars D E, and the springs *m*, constructed, arranged, and operating substantially as described.

I also claim the device for elevating the teeth *a*, consisting essentially of the arm or lever G, in combination with the crank H, operated substantially as set forth.

NATHANIEL H. BROWN.

Witnesses:

GREENLEAF C. BARTLETT,  
STEPHEN FESSENDEN.