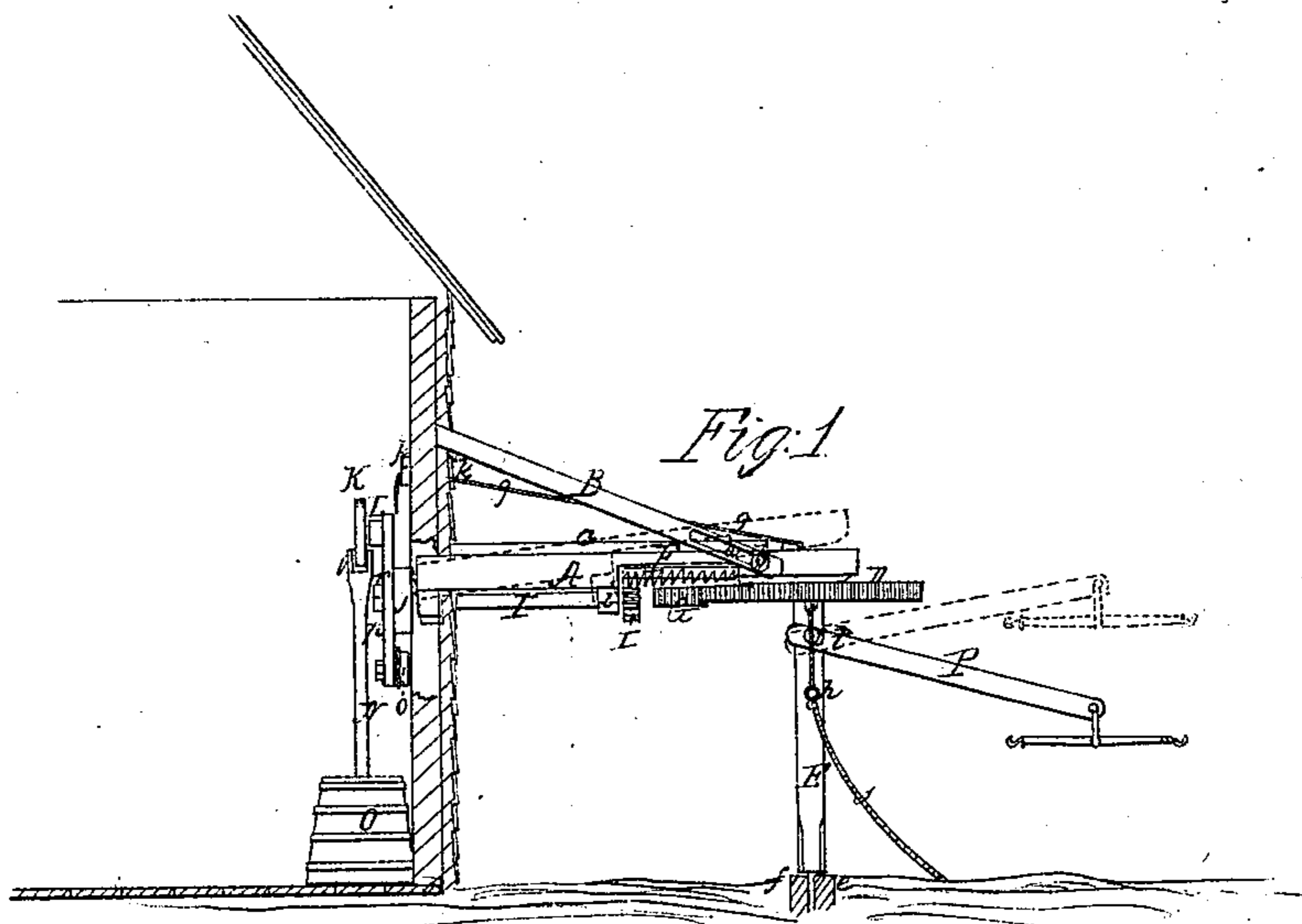


*M. A. Richardson,*

*Horse Power.*

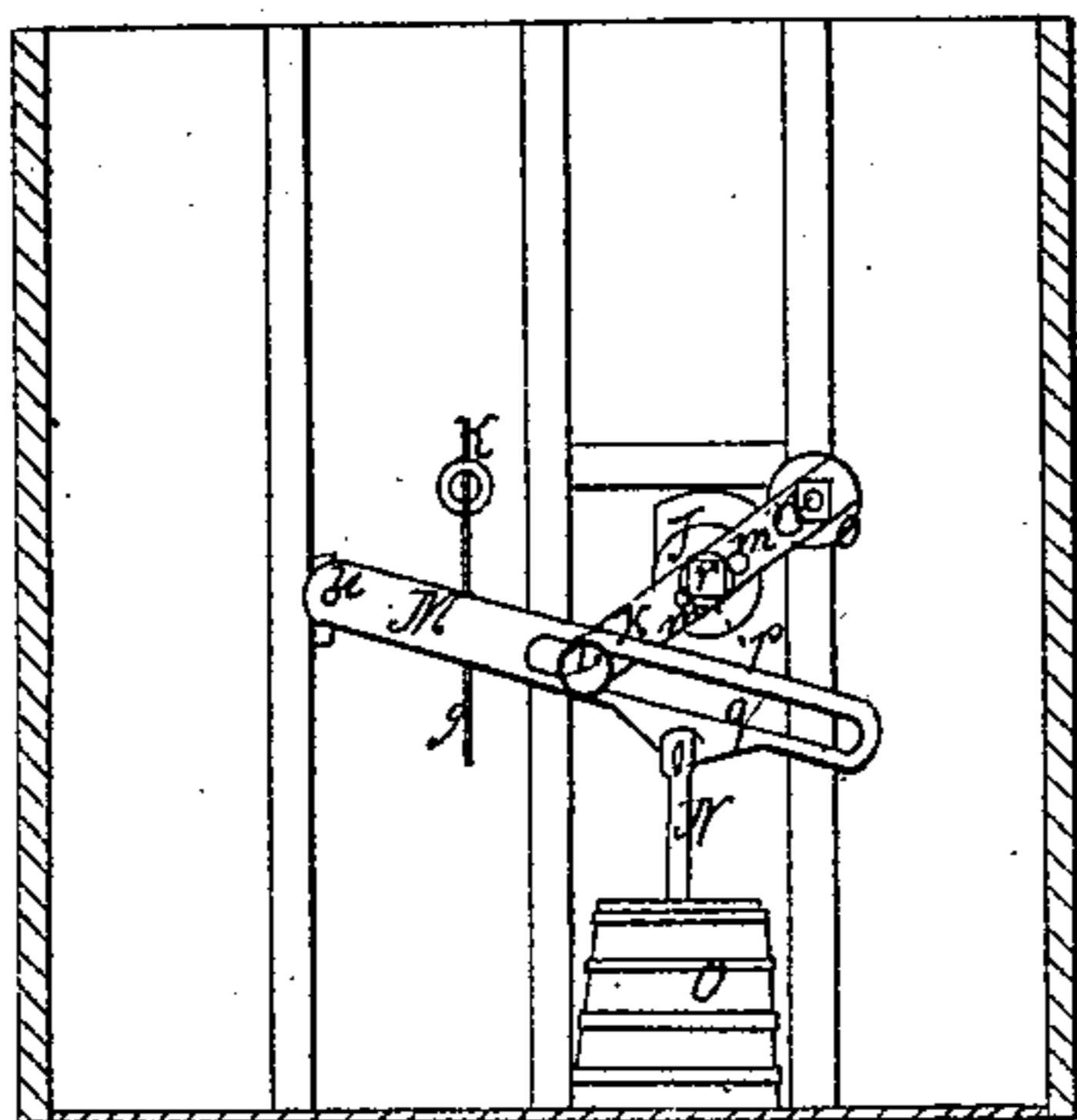
*No 76,816.*

*Patented Apr. 14, 1868.*

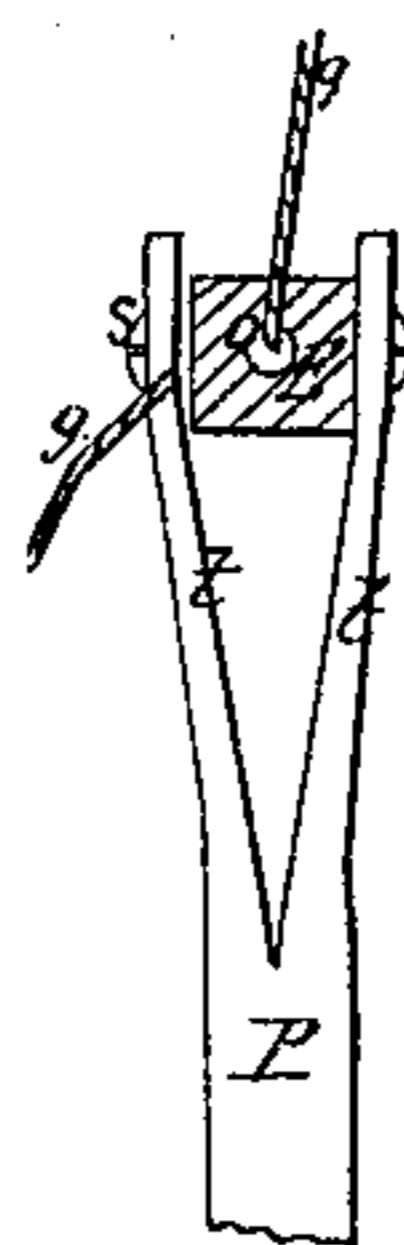
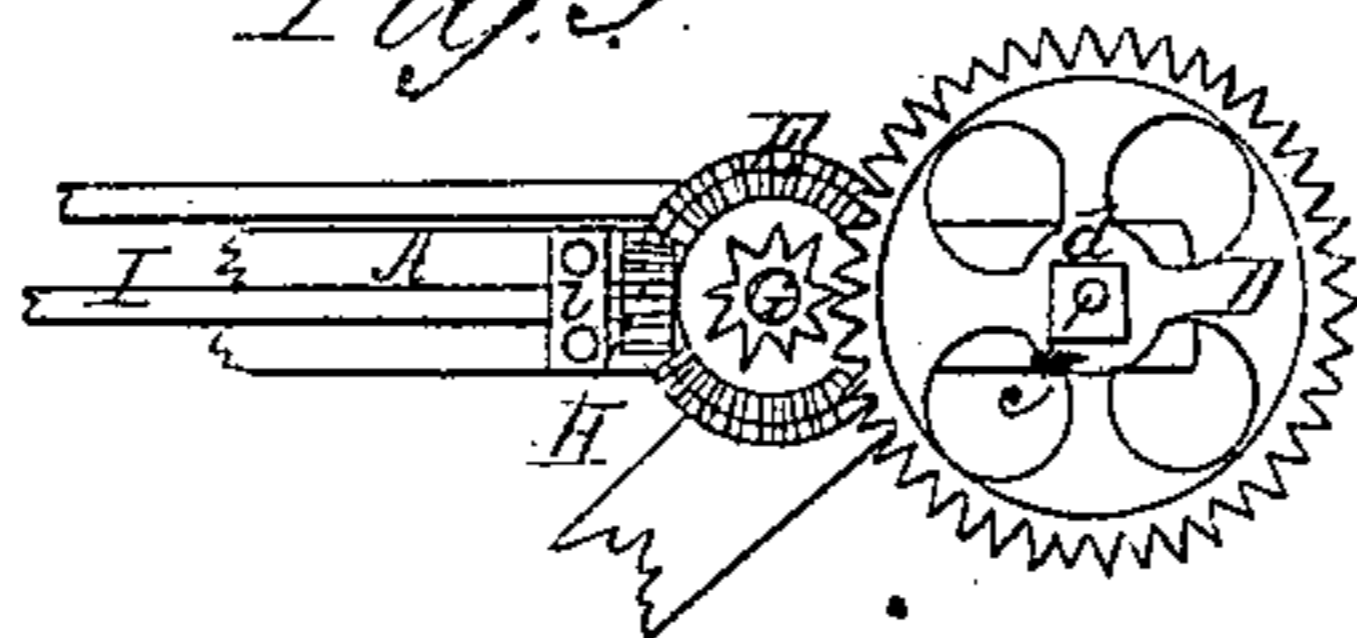


*Fig. 1.*

*Fig. 4.*



*Fig. 3.*



*Witnesses:*

*J. R. Drake,  
James F. Finner.*

*Inventor  
M. A. Richardson  
J. Fraser & Co  
attys*

# United States Patent Office.

M. A. RICHARDSON, OF SHERMAN, NEW YORK.

*Letters Patent No. 76,816, dated April 14, 1868.*

## IMPROVED HORSE-POWER.

*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, M. A. RICHARDSON, of Sherman, in the county of Chautauqua, and State of New York, have invented a certain new and useful Improvement in Horse-Powers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a side elevation of my apparatus, applied to a building.

Figure 2 an inside elevation.

Figure 3 a plan of the gearing turned bottom upward.

Figure 4 a view of the turning-shaft and forked sweep.

Like letters of reference indicate corresponding parts in all the figures.

My invention consists in the application of the power to the side of a building, in such a manner that the outer end of the supporting-beam is flexible, or capable of being raised, to allow the driving-shaft to be removed at pleasure; it also consists in the construction and arrangement of the inner or crank-end of the apparatus for transferring the power; it further consists in a cord passing from the inside of the building outward, downward through an eye in the main spur-wheel and top of the driving-shaft, and thence connecting with a belt passing around the horse's belly, whereby a spur may be applied to the horse from the inside, to quicken his motion, without the necessity of an extra attendant.

In the drawings, A indicates the main beam or arm, attached to the side of a building, so as to have a degree of vertical movement or spring, as indicated in red lines in fig. 1. With the outer end of this beam connects an angular horizontal brace, C, and a vertical brace, B, the latter having a slot and screw, *a b*, which allow the vertical movement of the beam, as aforesaid. The outer end of the beam sustains a set of gearing, D G F H, from which a shaft, I, transfers the power to the inside of the building.

The bearing of spur-wheel D is provided with a square eye or socket, *d*, in which sets one end of driving-shaft or spindle E, the opposite end being stepped in bearing *f*, in the ground.

A sweep, P, for attaching the horse, is secured to the shaft E by means of forks or branches, *t t*, and screws, *s s*, by which means the sweep can be tightened, so that when turned up (red lines, fig. 1,) it will retain its position, out of the way, when not in use.

The great advantage of this construction consists in so connecting and attaching the beam A, that it can be raised, as in red lines, to allow the shaft E to be removed.

As this power is intended to be connected with some building, this arrangement is very essential, since it is frequently necessary to drive a team near the building, under the beam, especially if it be an out-house or barn. The forming of the socket *d* in spur-wheel D, allows this to be effected with the greatest facility.

At the same time that the beam is thus capable of rising, it is firmly stayed by the angular vertical and horizontal braces B C, so that it cannot be racked by the strain.

This arrangement of attaching the power to the side of the building, so that the driving-shaft may be applied or removed at pleasure, I believe to be original with myself.

The inner end of the shaft I has a pulley, J, and also a crank-arm, K, held in place by nut and washer *r p*, which allows the crank-arm, at any time, to be removed, for the use of the pulley alone.

The crank-arm has, at one end, a wrist-pin, L, which rests in slot *q* of rock-lever M, pivoted at *u*, and it has, in the centre, an adjusting-slot or holes, *m*, for varying the length of the operating-end, and at the opposite extremity it has a slot, *n*, in which rests a counterbalance-weight, *o*.

By this arrangement the leverage of the crank can be adjusted at pleasure, by one movement of the crank-arm out or in, and the counterbalance-weight also adjusted in the same manner. When it is desired not to use the crank, but employ the pulley, the former is removed with great ease, and the setting of the nut up close and tight against the end of the pulley, fixes it firm in place. By this arrangement either a crank or pulley is secured to the end of the shaft I, to impart motion either separately or in conjunction, in the simplest and most effective manner.

The employment of the nut and washer *r p*, enables me to so gauge the power of the crank as to avoid any breakage by an undue degree of resistance; for by screwing up to the desired degree, if the resistance is greater than a given amount, the crank will turn back upon the shaft I, free of the holding-screw. This also enables me to raise or lower the rock-lever, as may be desired, for instance, in churns, to adjust the height of the dasher, as shown in the drawing.

A cord, *g*, passes outward from the inside of the building, through a thimble, *k*, thence to the extremity of beam A, and down through socket *d* of spur-gear D, thence through a central hole, *c*, in top of driving-shaft E, and finally comes out through the side of the shaft. At this point is interposed a swivel, *h*, when a continuation, *j*, passes on and connects with a belt passing around the belly of the horse, said belt having any suitable spur, to prick the horse when the cord is drawn taut.

By this means the operator, standing inside the building, can apply the spur at any time to the horse outside, saving the necessity of a second person for the purpose.

The passing of the cord through the central eye of the driving-shaft, prevents any winding of the cord upon said shaft, and the employment of swivel *h* obviates or compensates for all twisting of the cord. Therefore this peculiar arrangement insures a constant spur to the horse as he passes the circle, without winding or twisting—an effect that can be produced by no other arrangement within my knowledge.

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

1. The projecting beam A, supporting the gearing D G F H, and stayed by braces B C, in combination with the removable driving-shaft E, resting in square socket *d* of the spur-wheel, and supporting the forked sweep P, the whole being specially arranged for allowing the displacement of the said driving-shaft, as herein set forth.

2. The cord *g*, passing centrally through the top of the driving-shaft, and having a swivel, *h*, beneath, to prevent twisting, when combined with a belt passing around the horse's belly, in the manner and for the purpose specified.

3. The special construction and arrangement of the apparatus, as a whole, consisting of projecting beam A, braces B C, gearing D G F H, removable shaft E, forked sweep P, pulley J, crank K, and the spurring-cord *g*, operating in the manner and for the purpose specified.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

M. A. RICHARDSON.

Witnesses:

ALBERT HAIGHT,  
J. R. DRAKE.