

M. A. Richardson,

Horse Power.

No 80,308.

Patented July 28, 1868.

Fig. 1

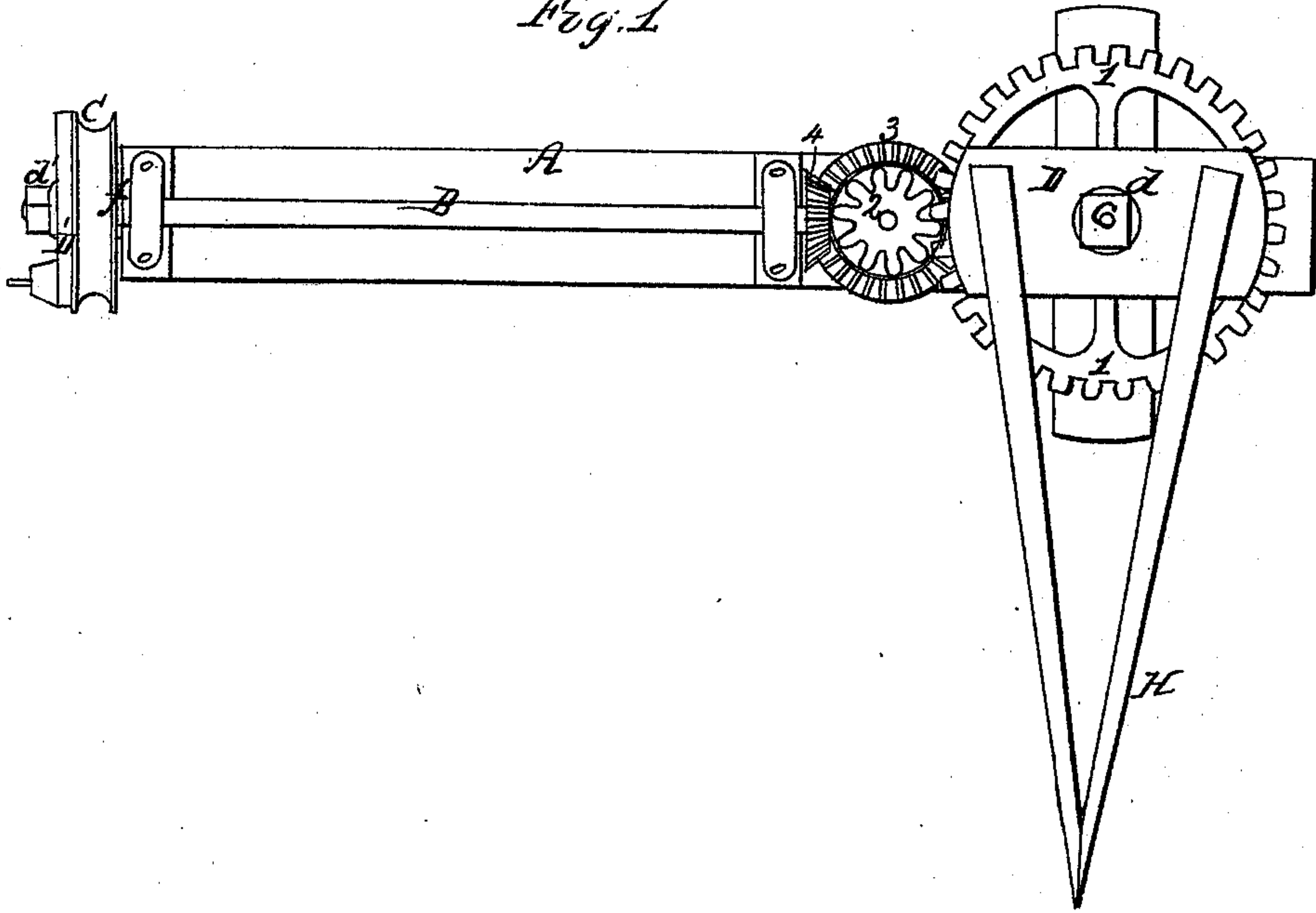
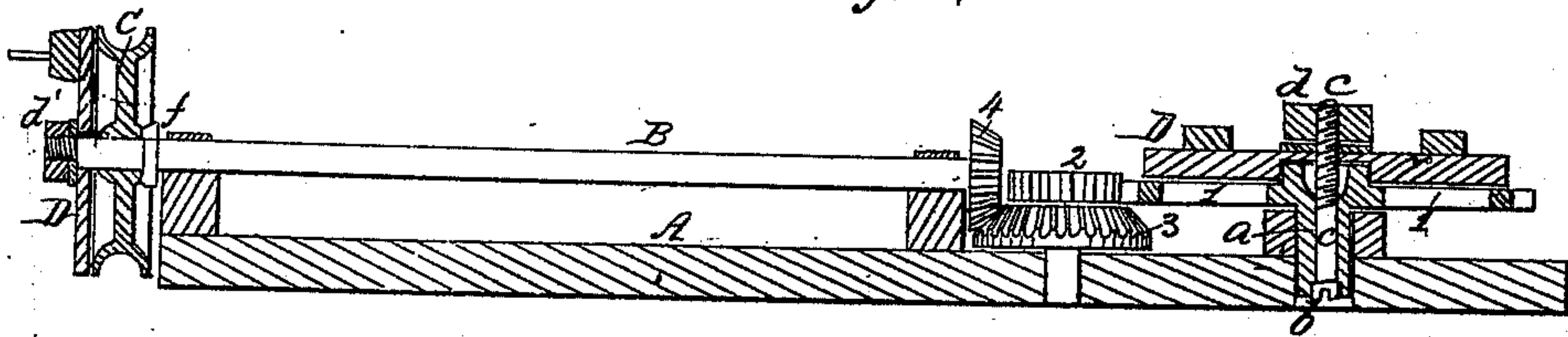
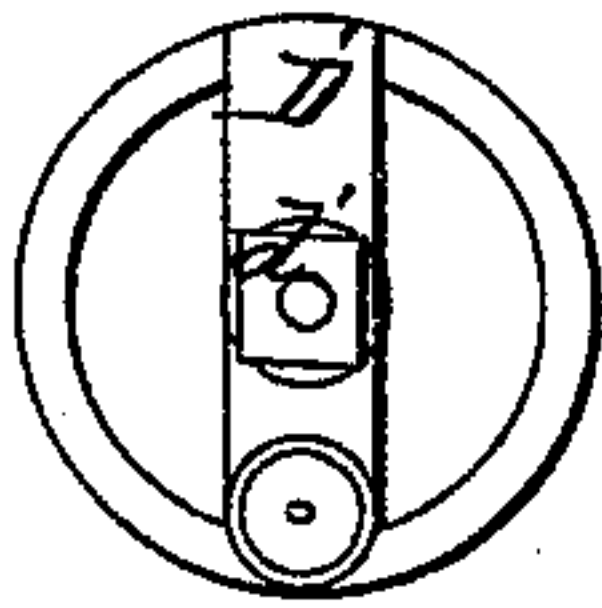


Fig. 2.



Inventor.

Fig. 3. M. A. Richardson,



by

*J. Fraser & Co
Attys*

Witnesses

J. R. Drake

Geo. H. Maff

United States Patent Office.

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

Letters Patent No. 80,308, dated July 28, 1868.

IMPROVEMENT IN 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 plan of my improved machine.

Figure 2, a vertical section of the same.

Figure 3, an end elevation of the balance-wheel and friction-attachment.

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

My invention consists in the application of an automatic friction-arrangement to the operating parts of a horse-power, in such a manner that, when a certain degree of resistance is reached, the said arrangement will run free of the parts, thereby preventing strain or breakage.

It further consists in the special construction and arrangement of the machine as a whole, whereby great simplicity and cheapness are obtained, and the parts may be easily detached for transportation or storage.

In the drawings, A indicates a bed or beam holding the gearing 1 2 3 4, and sustaining the shaft B, with its balance-wheel C.

The hub *a* of spur-gear 1 rests loosely in a socket, *b*, of the bed, so that it may be removed at any time from place by simply lifting out.

This hub is made hollow, and a screw-bolt, *c*, is run up through from the bottom, being so arranged as not to turn, except with the wheel. On top the spur-gear rests a wooden brake, D, extending from side to side, as shown, and having attached to it the sweep E, to which the team is hitched.

The screw-bolt passes through this, and a nut, *d*, screws down on top, by which the brake is made to bear with more or less pressure on the wheel, as may be desired. The whole thus constitutes one separate and independent arrangement, detached from the frame of the machine at pleasure.

The balance-wheel C is similarly arranged, resting loosely on the shaft B, against shoulder *f*, and having the friction-arrangement D' *d'* clamping it in place, as clearly shown.

The special object in this invention is to obviate sudden shocks that occur in starting and stopping, and the overstrain that arises from the disproportion of the power and resistance to the strength of the machinery.

This effect is perfectly accomplished by the means here described. The nut, *d*, can be applied to just such a degree that, when the resistance exceeds a certain limit, the friction-brake D will turn free on the part which it clamps. For instance, if the limit is set at one thousand pounds, the parts connect, and the gearing will turn till that limit is reached, but if the resistance exceeds that, the brake slips free over the clamping-surface, which then remains stationary.

This is not only of importance in preventing strain and breakage of the operating parts, but also in obviating sudden check and strain on the horse in starting. In its application to the balance-wheel, it also prevents breakage from sudden starting and stopping.

I prefer to make the brake of wood, as it is very cheap, and has a degree of natural elasticity that is of great advantage in action.

By making the gear 1 and the balance-wheel C removable, in the manner described, the bed A, with the remaining operating parts, is in simple and compact form, and the whole can be shipped and stored with great readiness, since the bed is simply a straight beam, and the connecting parts have but little projection, and occupy but little space. In this respect the advantage is obvious over those complex powers of irregular form now in use, whose parts are not easily separated. The exceeding simplicity and compactness of my machine is one of its greatest merits.

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

1. The friction-brake D and nut *d* applied to the operating parts of a horse-power, substantially as and for the purpose set forth.

2. The combination and arrangement of the driving-wheel 1 with the friction-device D *d*, in such a manner as to be removable from the bed, either separately or together, by the removal of the nut *d*, as explained.

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

M. A. RICHARDSON.

Witnesses:

J. R. DRAKE,
ALBERT HAIGHT.