E. Morris,

Elevator.

No. 4,097. Patented July 5, 1845.

Fig. 3.

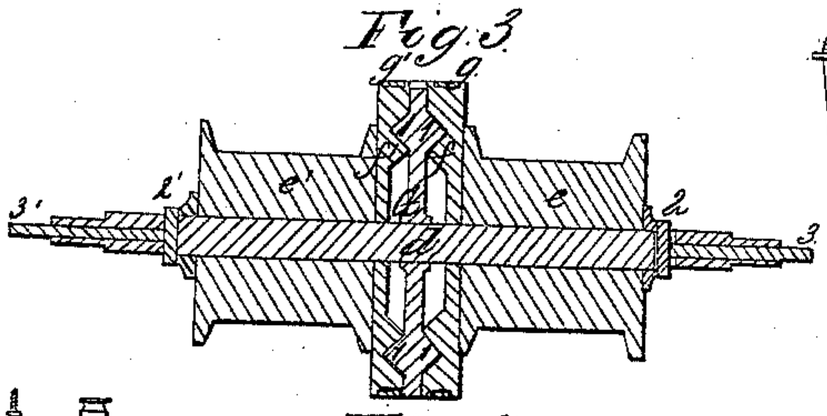


Fig. 2.

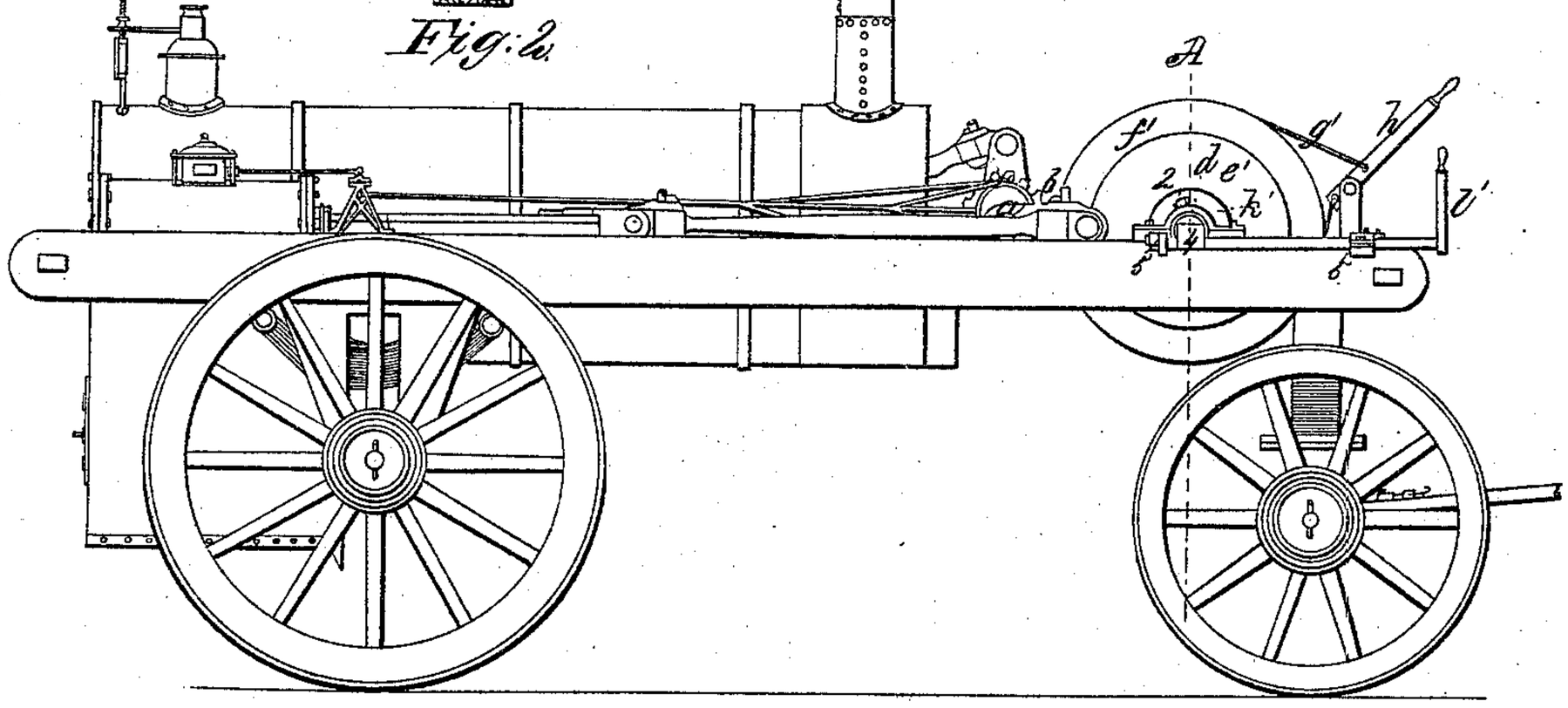
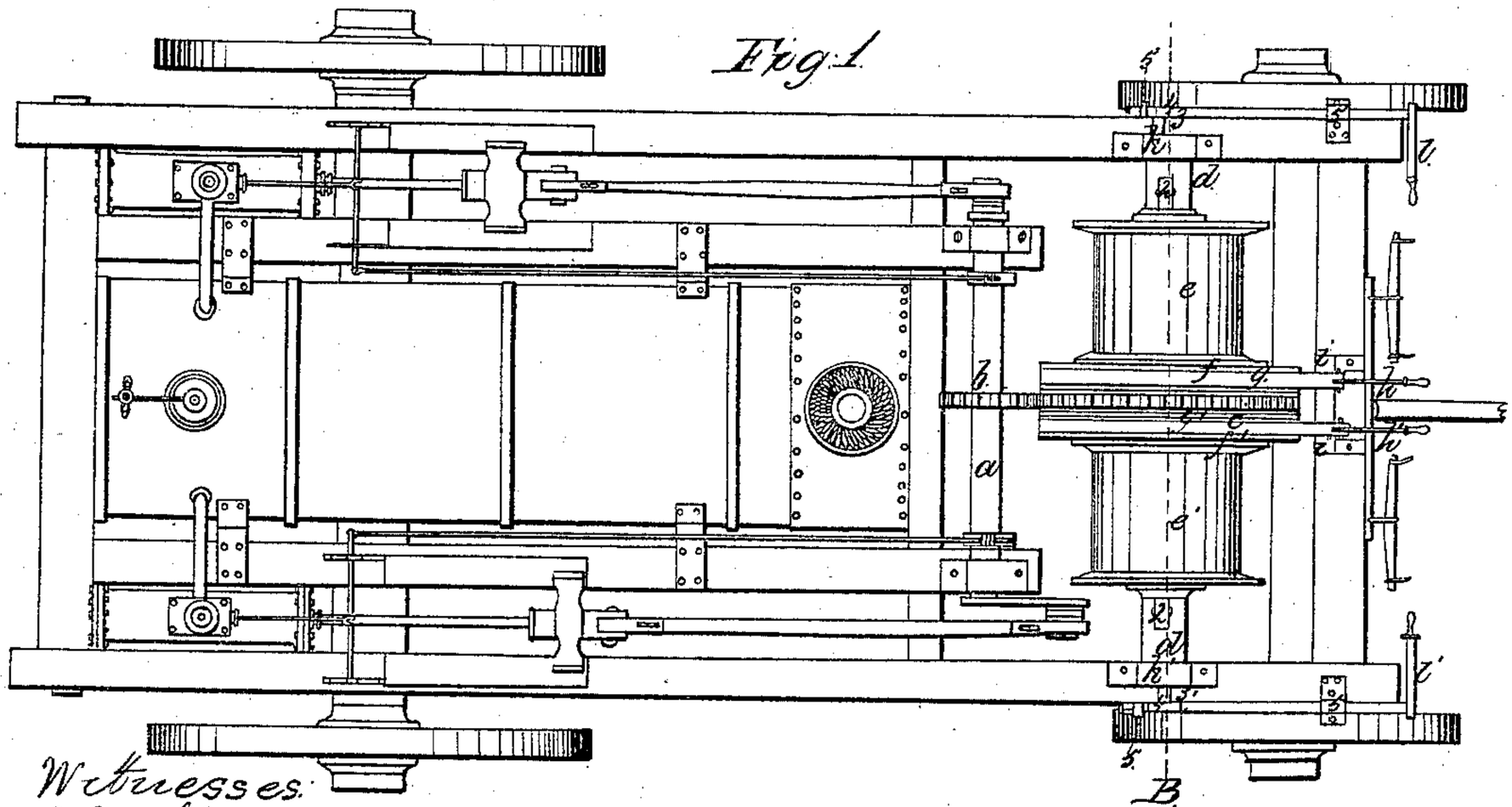


Fig. 1.



Witnesses.
N. Bliss.
W. Lovell

Inventor.
E. Morris

UNITED STATES PATENT OFFICE.

EPHRAIM MORRIS, OF NEW YORK, N. Y.

MACHINE FOR RAISING AND LOWERING WEIGHTS.

Specification of Letters Patent No. 4,097, dated July 5, 1845.

To all whom it may concern:

Be it known that I, EPHRAIM MORRIS, of the city, county, and State of New York, engineer, have invented and made and applied to use certain new and useful improvements in the means of governing the application of power in hoisting, lowering, or suspending weights of any kind for any purpose, such means having been originally intended to govern and regulate the action of locomotive steam-power when applied to any such purposes; but said means, consisting in the application and contact of metal friction disks or plates made in a peculiar form and used in combination with other and well-known parts, are equally available for use with any other power for any usual purpose, for which improvements I seek Letters Patent of the United States, and that the said improvements and the mode of constructing and using the same are fully and substantially set forth and shown in the following description and in the drawing annexed to and making part of this specification, wherein—

Figure 1 is a plan and Fig. 2 an elevation of a locomotive engine fitted with my improvements. Fig. 3 is a section of the acting parts through the line A, B, Figs. 1 and 2.

The machine is shown as if to be drawn by animal power but may be fitted to transport itself, and the same letters and numbers as marks of reference apply to the same parts in all the figures, but the especial description of the locomotive engine is omitted as not being necessary to the full explanation of the hereby intended invention.

a is the engine crank shaft but may represent any usual means by which power may be applied to turn the pinion *b*, shown as fitted on the shaft *a*, and gearing into a large and strong spur or driving wheel *c*, which has on each side of the rim a circular concentric rib 1, 1, shown as Λ formed or angular but may be formed with rounding surfaces. These and the sides of the rims are to be accurately turned and faced in a lathe to the form selected. The wheel *c*, is to be mounted on the barrel shaft *d*. This is to be fitted into journal boxes *k*, *k*, on the frame of the machine as shown in the drawing and carries on each side of the driving wheel *c*, a winch barrel *e* and *e'*, made as usual to receive ropes or chains for hoisting, lowering, or suspending the weight, but each barrel is fitted to roll easily and to have a limited endwise motion, on the shaft *d*. The barrels have each at the end next the wheel *c*, a strong metal disk *f* or *f'*. The face of each disk in contact with the wheel *c*, is to be turned and fitted with a circular and concentric groove made to receive and fit tightly to the rib 1, 1, of the wheel *c*, and the edge of each disk is to be grooved to receive a metal friction or brake band *g*, or *g'*. One end of each of these bands is secured to the point of the friction levers *h*, or *h'*, the other end is secured to the same lever outside or beyond the fulcrum *i* or *i'* on the frame of the machine. The shaft *d*, is large enough to have a mortise through it. Next the outer end of each barrel this mortise receives a slide key 2 or 2′ not quite wide enough to fill the length of the mortise and lying in contact with the boss or hub of the barrel *e* or *e'*, and the ends of the shaft *d*, are bored out to form a hollow cylinder opening to the mortise and key. In the cylinder thus formed a strong pin 3 or 3′ is inserted with the inner end in contact with the slide keys 2 or 2′ the outer end of each pin 3 or 3′ lying in contact with a bit or tongue on a rolling shaft 4 or 4′ secured in bracket journals 5, 5, on the frame of the machine and each shaft 4 or 4′ is fitted with a hand lever *l*, or *l'*. When thus fitted and adjusted it will be obvious to any mechanic that with the machine so secured in any position that it cannot be displaced by the weight to be moved. The steam or other power employed may be made to keep the pinion *b*, and wheel *c*, in constant motion but the barrels *e* or *e'*, will not revolve with them until the attending director of the machine depressing one lever *l*, or *l'*, forces the bit on the shaft 4 or 4′, into contact and pressure on the outer ends of the pin 3 or 3′. This instantaneously operates to force the slide key 2 or 2′ against the boss of the barrel *e* or *e'*, which sliding from the pressure so given brings the face and groove of the disk *f*, or *f'*, so strongly into contact with and adhesion to the face and ribs 1, 1, of the wheel *c* that the friction caused is generally enough to raise any weight within the compass of the power employed and the strength of the machine and attendant, and when high enough or when any temporary stop is needed the friction bands and

levers give the attendant the power of suspending the weight while hoisting by depressing the levers h, or h', and detaching the disk f or f' from the wheel c, by simply releasing the lever l, or l', and when it is desired to lower the weight the combined operation of the levers l or l', and h or h', enables the attendant to control this operation with ease and certainty.

I do not intend to confine myself to the mode herein set forth of using the power of a locomotive steam engine as a motive power but to use any convenient power according to local circumstances. Nor do I mean to confine myself to the described and specified mechanical mode of communicating the motive power to the working parts employed but to vary the same in like manner according to circumstances. Neither do I intend to confine or limit myself to the mode specified for arranging, proportioning, and employing the working parts as these may be varied to suit the work they are to perform without any substantial departure from the mechanical combinations herein described and set forth. As most of the parts herein described and employed have been used for other purposes, I do not intend to claim as new or of my own invention any of such parts irrespective of the uses for which I have employed them and therefore I limit my claims as follows:

I claim as new and of my own invention and desire to secure by Letters Patent—

1. The manner of combining the barrel disks f, f' with the wheel c, for the purpose of hoisting lowering or suspending weights by means of the ribs and grooves or any analogous device.

2. And I claim the further combination therewith of the means employed to govern and regulate the action of said parts namely the friction bands g or g', and levers h or h', the attaching and detaching lever l, or l', rolling shaft and bit 4 or 4′, pin 3 or 3′, and slide key 2 or 2′, substantially as such manner and combination are shown and set forth irrespective of the power employed to work the machinery and also irrespective of the mode by which the power is connected to the working parts.

In witness whereof I have hereunto set my hand in the city of New York this twentieth day of March one thousand eight hundred and forty five.

EPHM. MORRIS. [L. S.]

Witnesses:
N. BLISS,
W. SERRELL.