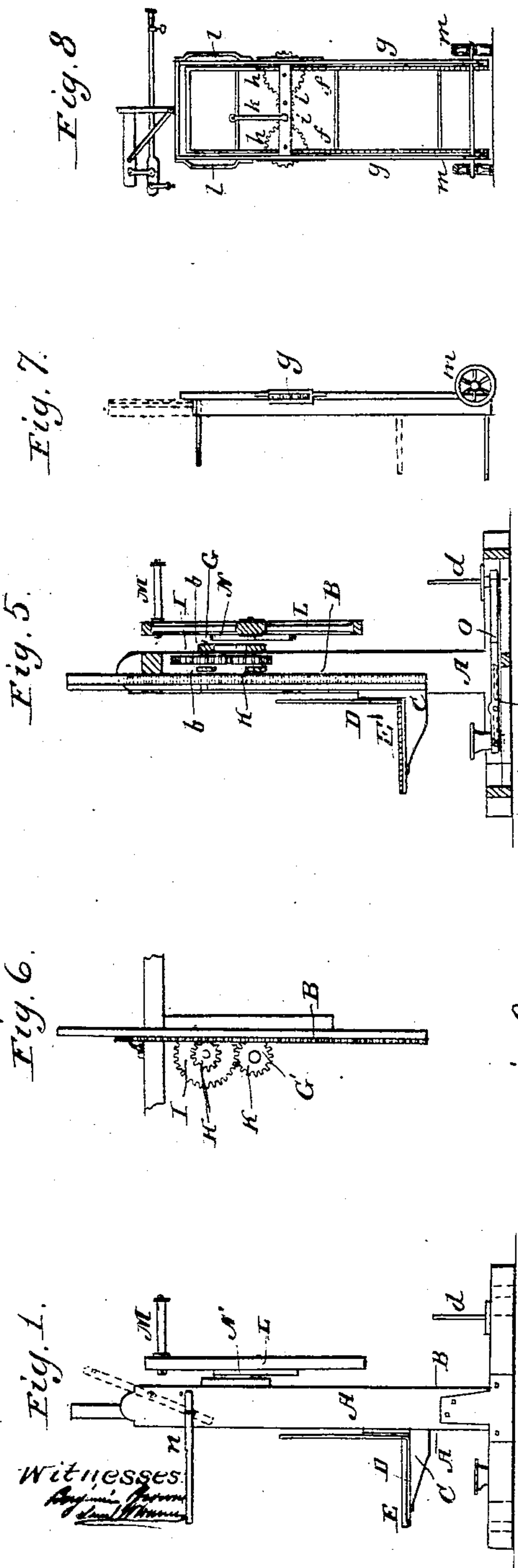


H. WINTER.  
Balance Scales.

3 Sheets—Sheet 1.

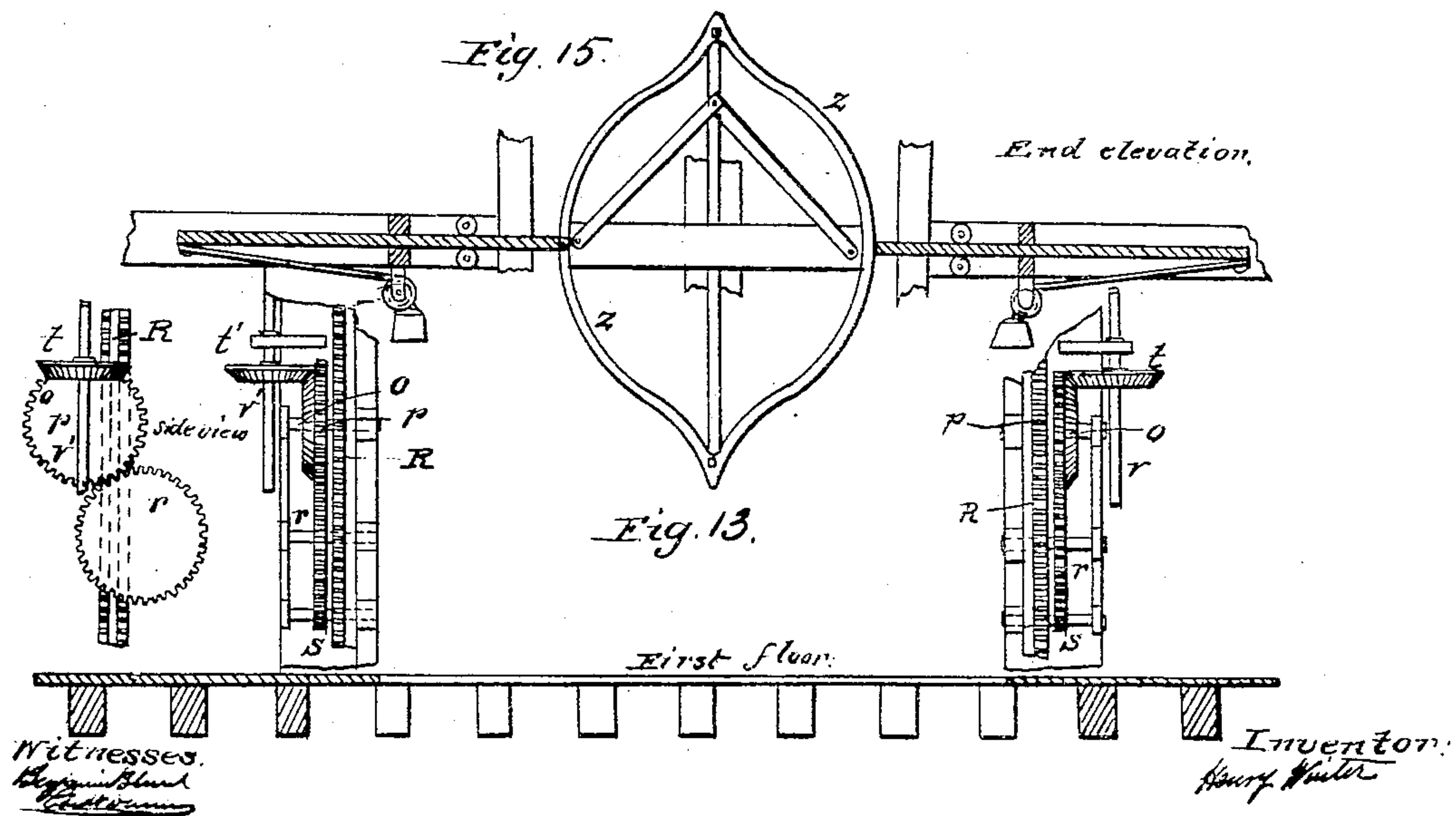
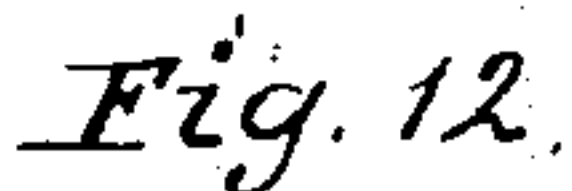
No. 32,326.

Patented May 14, 1861.



**3 Sheets—Sheet 2.**

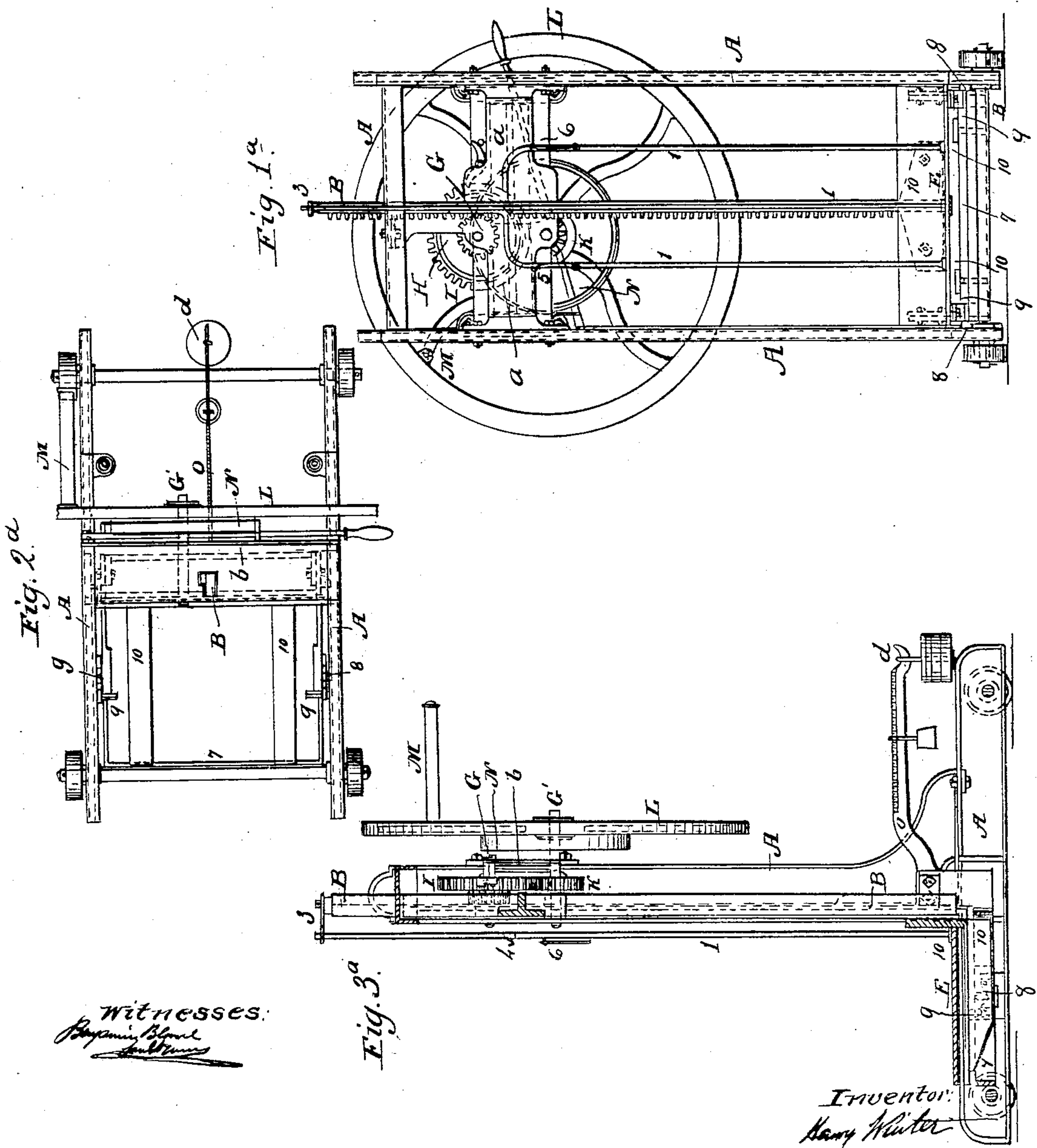
Patented May 14, 1861.



H. WINTER.  
Balance Scales.

No. 32,326.

Patented May 14, 1861.



Witnesses:  
*Benjamin B. Bond*  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

HENRY WINTER, OF HACKNEY, ENGLAND.

## MACHINE FOR WEIGHING SACKS.

Specification of Letters Patent No. 32,326, dated May 14, 1861

*To all whom it may concern:*

Be it known that I, HENRY WINTER, of Albion Place, Hackney, in the county of Middlesex, England, a subject of the Queen of Great Britain, have invented or discovered a Machine or Apparatus for Lifting and Weighing Loaded Sacks and also Merchandise; and I, the said HENRY WINTER, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof—that is to say—

This invention is designed for reducing manual labor and consists of certain mechanism constituting a movable or fixed machine or apparatus for lifting and weighing or for only lifting loaded sacks and also merchandise.

The mode heretofore commonly practiced of lifting sacks has been for two persons one at each side of the sack to raise it from the place on which it rests and a third person receives it on his back and conveys it away. By the use of this invention the person who has to carry the sack can with a very little effort quickly raise it to the proper height for taking it on his back.

The following is the construction of the aforesaid machine or apparatus: At the center of a skeleton framing a toothed rack is adjusted loosely in a vertical position and to the bottom of said rack and fixed to one side thereof a board or platform is connected to receive the sack or other weight to be raised; a toothed pinion takes or gears into the aforesaid rack and on the axis of said pinion another toothed wheel of larger diameter than the pinion is keyed this wheel gears into another pinion, on the axis of which a fly wheel is keyed and to said wheel a handle is fixed for imparting rotary motion thereto the effect of which is to transmit such said motion to the rack and platform aforesaid so as to raise the weight thereon. In cases where it is required to weigh the sack or other load to be lifted I propose to place a double scale beam at the lower part or bottom of the platform of the machine and so dispose said beam that the scale board or platform of the rack shall rest, on one end of said beam or beams and for this purpose the driving pinion of the rack should be formed as to be capable of being thrown out of gear with the rack. It will appear obvious that by increasing

the height of the machine, weights may be raised from one story of a warehouse to the next or from floor to floor as may be required.

In order to explain this invention as completely as possible I now proceed to describe the best means I am acquainted with for carrying the same into practical effect reference being had to the illustrative sheet of drawings hereunto annexed and to the numeral figures and letters of reference marked thereon respectively as follows:

### *Description of the Drawings.*

At Sheet 1, Figures 1, 2, 3, 4, 5, 6 respectively exhibit several views of a machine constructed according to this invention adapted for lifting and weighing loaded sacks and also merchandise. Fig. 1 is a side elevation of said machine; Fig. 2 a front view thereof; Fig. 3 a back view; Fig. 4 a horizontal section through the line A B at Figs. 1, 2, 3; Fig. 5 a vertical section through the line C D at Figs. 2 and 3; Fig. 6 a detached portion hereinafter described and referred to. At Sheet 2 Figs. 1<sup>a</sup>, 2<sup>a</sup>, 3<sup>a</sup> respectively exhibit several views of a modified form of construction of machine adapted for lifting and weighing loaded sacks and also merchandise. Fig. 1<sup>a</sup> is a front elevation of said machine; Fig. 2<sup>a</sup> a top plan view thereof without sack holder and platform; Fig. 3<sup>a</sup> section through A B at Figs. 1<sup>a</sup> and 2<sup>a</sup>. At Sheet 3 Figs. 7, 8, 9, 10, 11 exhibit several views of another form of machine constructed according to this invention adapted for lifting and weighing loaded sacks and also merchandise, this machine being a modification of the machines exhibited at Sheets 1 and 2 above mentioned. At Sheet 4 Figs. 12, 13, 14, 15 respectively exhibit several views of a machine constructed according to this invention and adapted for lifting weights or merchandise from one story or floor of a warehouse to others above by successive lifts through the agency of mechanism arranged as hereafter described for that purpose.

At each of the foregoing figures of each of the aforesaid sheets of drawings I employ similar characters of reference to denote corresponding parts in so far as such parts appear or can be seen at each of such said sheets of drawings and figures respectively.

At sheet 1 A is a framing; B a toothed



rack of metal working in guides *a a* of the said framing; C metal bracket pieces fixed to the bottom of the rack B and supporting a skeleton framing D on which rests a  
 5 board E on which the weight to be weighed and raised is placed; G G' are short axes or spindles supported by and working in bearing pieces *b b* as at Fig. 5.

H is a toothed pinion capable of sliding  
 10 on the spindle G so as to be brought either into or out of gear with the teeth of the rack B.

I is a toothed wheel keyed on the spindle G; this wheel gears into a pinion K fixed  
 15 on the spindle G'; L a fly wheel fixed on the spindle G'; M a handle fixed to the aforesaid fly wheel for imparting motion to the mechanism.

N is a brake for lowering and retaining  
 20 the board at any desired height when required; O is a scale beam for weighing; *c c* the knife edges on which the beam oscillates; P a piece connected to the weighing beams; the board rests upon the piece P  
 25 in the act of weighing anything placed on said board, *d* a rod fixed to the scale beams on which the weights are to be placed as required. (In weighing anything in the  
 30 the pinion H out of gear with the rack B and also to allow for the weight of the scale board and rack.) I would here observe that when this machine is not required to weigh loaded sacks or merchandise the weighing  
 35 apparatus above described may be dispensed with and when this is the case the pinion H may then be permanently in gear with the teeth of the rack B and by removing the handle M and placing a fast and loose  
 40 pulley or riggers on the spindle G and passing an endless strap over the fast pulley or rigger the machine may then be worked by steam or other motive power instead of by manual labor. This machine may likewise  
 45 be constructed as exhibited at Sheet 2 observing that the principal points of difference between this last mentioned machine and that exhibited at Sheet 1 aforesaid consist in the construction of the sack holder  
 50 and in the weighing mechanism. As regards the sack holder it consists of a forked rod or bar 1 the lower ends whereof are affixed to the plate or platform E which supports the sack. The upper end of the  
 55 rod 1 is connected by a piece of metal 3 to the top of the rack B and moves therewith. 4, 5, 6 are hooks—that marked 4 is fixed to the rod 1 and those marked 5, 6 are loosely connected to said rod. The said hooks are  
 60 employed to support the head and sides of the sack and also to keep the mouth thereof open when desired. As regards the weighing mechanism it differs from that before described and represented at Sheet 1 in the  
 65 following respects—that is to say the plate

or platform E which supports the sack is in this case made independent of the rack and mechanism employed to raise the sack. For this purpose I form a framing 7 supported by the knife edges 8, 8. I also affix  
 70 to said framing two other knife edges 9, 9 for supporting the plate or platform E and weight placed thereon during the operation of weighing.

10 are pieces affixed to the rack B for lifting the plate or platform E and sack or other weight placed thereon. In other respects the mechanism is similar to that exhibited at Sheet 1 and the same letters of reference are employed to denote corresponding parts  
 80 wherever they appear.

The machine represented on Sheet 3 shows a modification of the same invention and represents a hand machine or truck the weighing mechanism being a steelyard  
 85 working on a swivel fixed to the top of the machine as exhibited at Fig. 8; *e e* are pinions gearing into the teeth of the racks *f f* formed on the skeleton framing *g*; *h h* are wheels respectively fixed on the axes of the  
 90 pinions *e e* for transmitting motion to the racks *f f* through the medium of the pinions *i i* which gear into each other and into the wheels *h h*; *k* is a handle fixed on the axis of one or other of the pinions *i* for imparting  
 95 motion to the mechanism; *l l* are handles and *m m* running wheels for moving the machine from one place to another *n n* are rods for holding the mouth of a sack open when required.

The machine represents a modification of my invention when applied for raising weights through the different floors of a warehouse. Q is a framing of wood or metal carrying a platform *u u* on which the  
 105 weights to be raised are to be placed; R R are double racks fixed to said framing and working in suitable guides as at Fig. 15 placed at each of the uprights S S to which is also connected the following mechanism  
 110 to be employed for raising the platform *u u*; *o, p, q, q', r, r', s* are a train of wheels and pinions mounted on axes working in bearing pieces fixed to the upright S S; T a handle for imparting motion thereto; U a  
 115 brake wheel for lowering or retaining at any desired height the platform *u u*; V V' are shafts extending throughout the entire height of the several floors or rooms of a warehouse. The extremities of said shafts  
 120 have beveled wheels *t t'* fixed thereon; the bevel wheel *t'* receives rotary motion from the bevel wheel *o* fixed on the face of the wheel *p* and by means of connecting rods  
 125 *u' u'* cranks *v* and cross spindle *w* corresponding motion is imparted or transmitted to the wheelwork and upright shaft V' at the other end of the platform *u u* by which both ends of the platform are raised together; I propose to fix wheel work in  
 130



each floor or room of the warehouse in which this machine is intended to be used and I make the racks R R of such length as that when the platform successively reaches  
5 the ceiling of the floor or room above the said racks shall take into the wheels of the wheelwork therein and be thus lifted thereby as before in consequence of the shafts V V' being continually rotating during the lift-  
10 ing of the platform and in this manner and by these means I am enabled to raise weights from floor to floor of a warehouse in a simple and efficient manner and by reversing the direction of motion of the wheel-  
15 work at the basement floor of the warehouse, the platform may be lowered using the brake wheel or wheels as desired. I propose to employ self acting sliding doors or shutters between each of the floors as exhibited at  
20 Fig. 15 of Sheet 4 to prevent persons falling down the opening in said floors; the

rods Z fixed at each end of the platform act as wedges to force open the said sliding doors as the platform rises and descends and the weights close said doors. 25

Having now fully described and set forth the nature and object of my said invention of a machine or apparatus for lifting and weighing loaded sacks and also merchandise, together with the best means I am ac- 30 quainted with for carrying the same into practical effect I would remark in conclusion that I claim as my invention and desire to secure by Letters Patent—

A machine or apparatus of the construc- 35 tion substantially as above described, and for the purpose herein set forth.

HENRY WINTER.

Witnesses:

BENJAMIN BROWNE,  
JOHN SMITH.