

(No Model.)

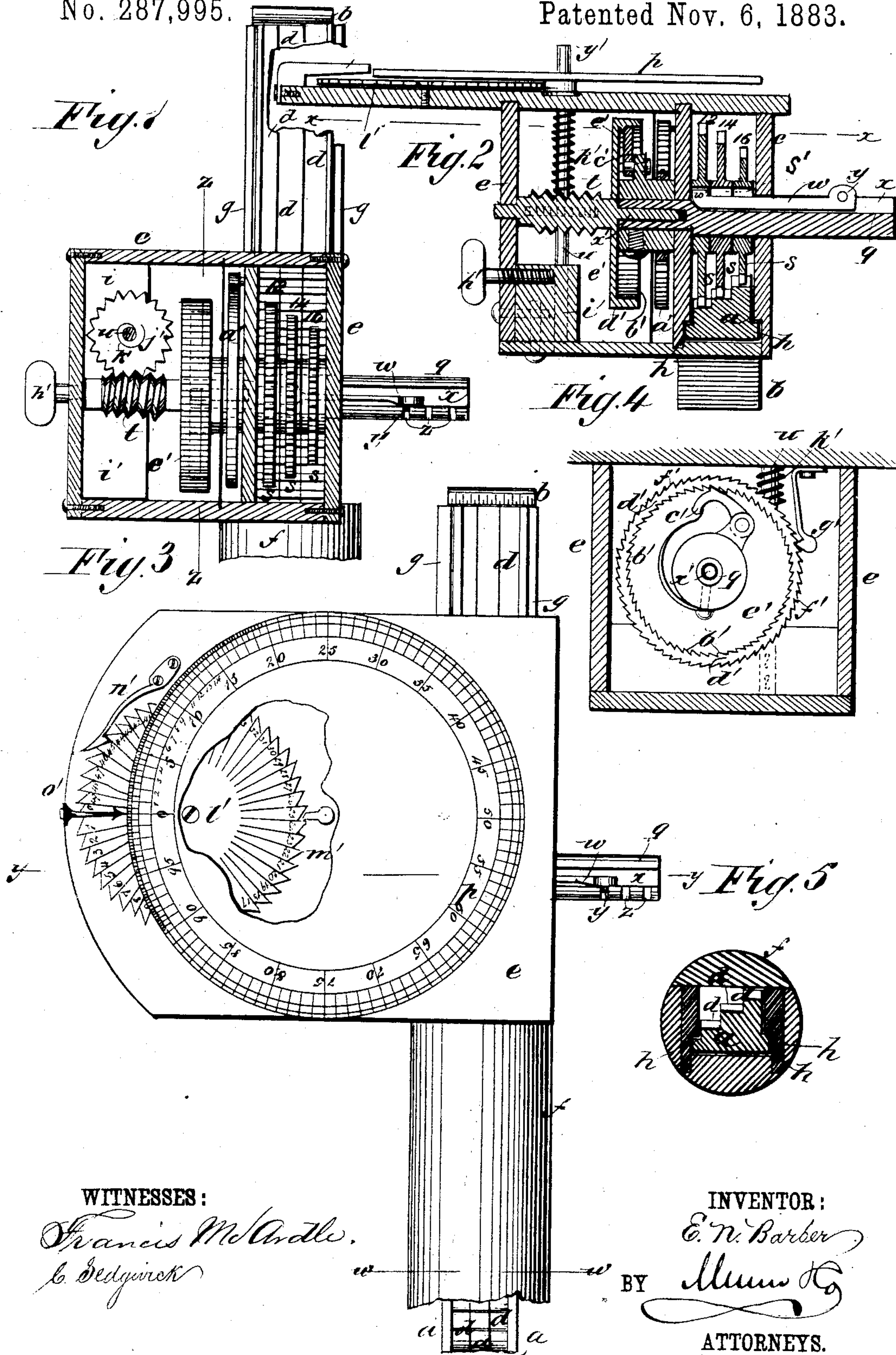
2 Sheets—Sheet 1.

E. N. BARBER.

LUMBER MEASURE.

No. 287,995.

Patented Nov. 6, 1883.



WITNESSES:

Francis McArdle,
C. Sedgwick

INVENTOR:

E. N. Barber

BY

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ATTORNEYS.

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Fig. 6

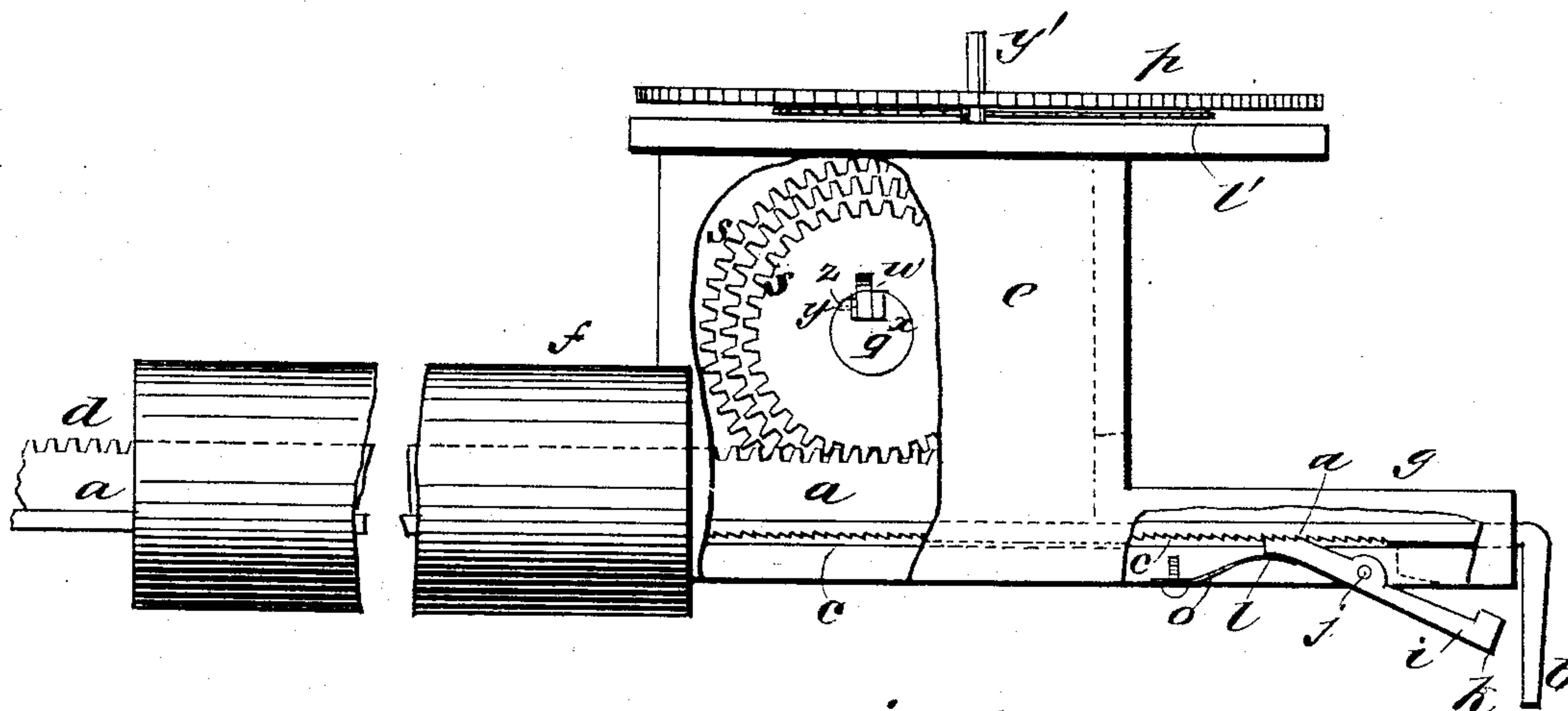
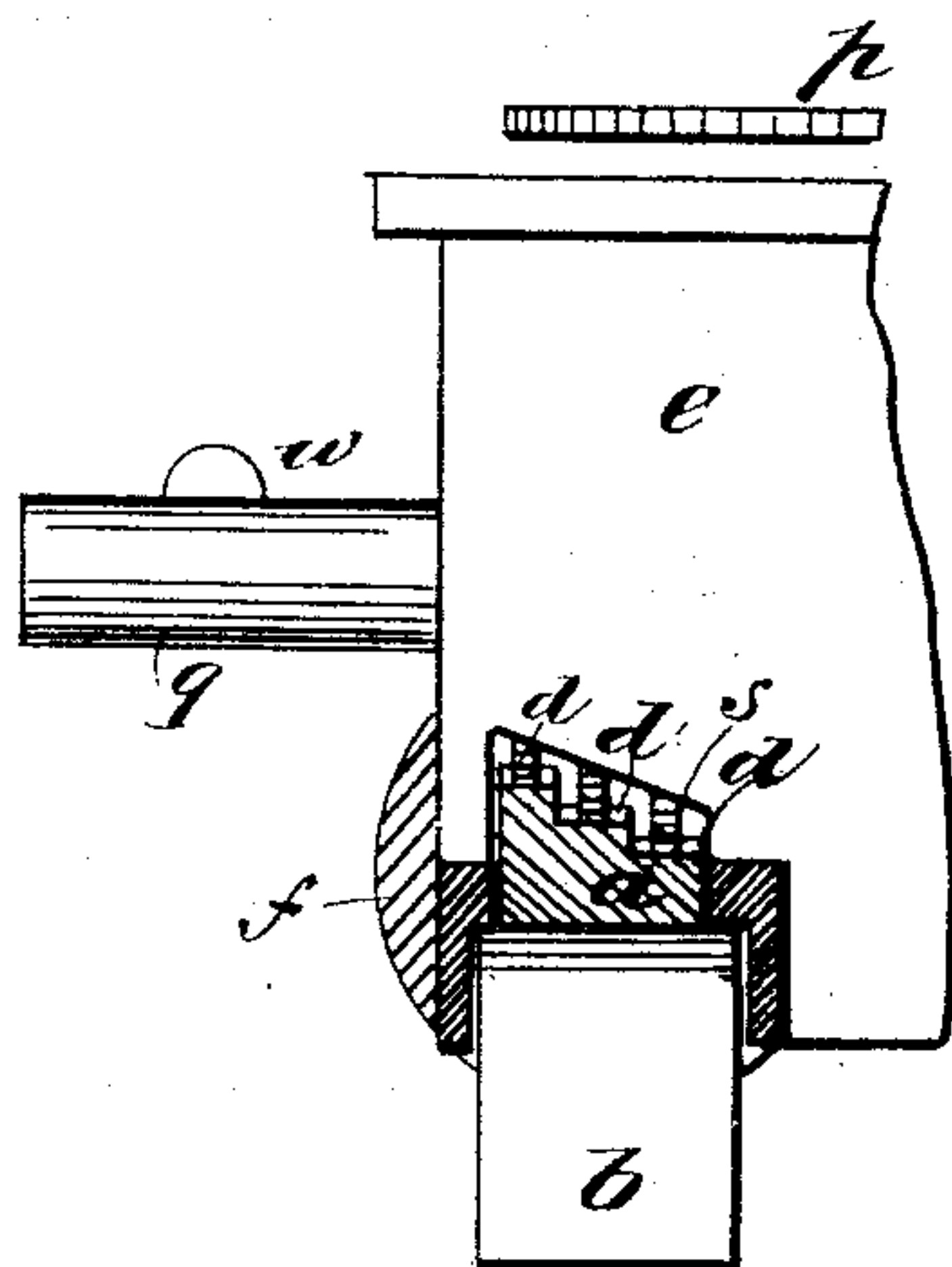


Fig. 7



WITNESSES:

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UNITED STATES PATENT OFFICE.

EMMET N. BARBER, OF KENT, OHIO.

LUMBER-MEASURE.

SPECIFICATION forming part of Letters Patent No. 287,995, dated November 6, 1882.

Application filed February 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, EMMET N. BARBER, of Kent, in the county of Portage and State of Ohio, have invented a new and Improved Lumber-Measure, of which the following is a full, clear, and exact description.

My invention consists of a contrivance of mechanical devices designed for measuring lumber and accurately registering the aggregate number of feet, board measure, of boards of any width and length, the length being known to the operator.

It consists, essentially, of a bar with a hook-head to be engaged with one edge of the board to be measured, and a registering apparatus, which is to be set in motion by drawing it along the bar across the board, the bar being toothed and the registering apparatus having differential wheels for the different lengths of lumber, to be geared with and actuated by the rack to work the register accordingly, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a horizontal section of the apparatus, taken below the cover on line *x x* of Fig. 2. Fig. 2 is a sectional elevation taken on the line *y y*, Fig. 3. Fig. 3 is a broken plan view with cover removed. Fig. 4 is a sectional elevation on the line *z z* of Fig. 1. Fig. 5 is a section of Fig. 3 on line *w w*. Fig. 6 is a side elevation of the machine with a part of the case broken out; and Fig. 7 is a detail, partly in side elevation and partly in section.

The toothed bar *a*, for hooking on the edge of the board to be measured and operating the recording apparatus, has a hook-head, *b*, at the end that is to be hooked on. It also has a strip or line of ratchet-teeth, *c*, on the underside, and as many different lines of toothed racks *d* on the upper side as the number of change-wheels with which the machine is to be provided for different lengths of boards to be measured. The rack-bar thus constructed, and being long enough for the widest boards, is arranged to slide backward and forward through a case, *e*, handle *f*, and an extension, *g*, of the case in guide-grooves *h*, the said extension *g* being on the

side of the case out of which the hook end of the bar projects, and having a stop-pawl, *i*, pivoted at *j* in a slot in the under side of said extension, with its free end *k* ranging close to the inside of the hook *b*, and projecting sufficiently below the surface of the bottom of extension *g*, when the end *l* is engaged with the ratchet *c*, to be pressed up when the bar *a* is hooked onto the board, so as to release the ratchet and allow the case *e*, containing the registering apparatus, to be drawn along the bar until end *k* of the pawl escapes from the other edge of the board. The spring *o* then throws up the pawl, which engages the rack *c* and stops the farther movement of the machine, which, having thus moved the width of the board, will have registered the measure of the board on the dial *p* by turning the shaft *q* by one of the change-wheels *s*, corresponding to the length of the board, said shaft turning the worm *t*, and the worm *t* turning the dial by its shaft *u*. The pawl *i* is employed to prevent accidentally drawing the machine too far and to save close watching by the attendant.

The wheels *s* are fitted loosely on the shaft *q*, and are slotted, as shown at *s'*, to receive the upturned end *w'* of the key *w* sliding in the groove *x* of the shaft *q*, so that by moving the key to bring its upturned end into the slot of the wheels any one of them may be locked or connected to the shaft while all the others will be disconnected, as shown in Fig. 2, the said key being fitted in the groove *x* to slide freely, and provided with a thumb-bit and stud, *y*, by which to actuate it most conveniently with the thumb of the left hand at the same time that the instrument is held therein by the handle *f*. The key is also contrived for springing against the notched side of the groove and carrying the stud *y* for locking it in any one of the notches *z*, by which the key is to be secured in the slot of any one of the wheels *s*, as shown in Figs. 1 and 3.

The registering apparatus and the wheels *s*, for the lengths of boards for which they are respectively provided, are proportioned so that when the machine has been drawn along the bar the width of the board the measure of it will be recorded on the dial. For example, the larger wheel *s*, which may be marked No. 12, will turn the dial so as to record twelve

feet when the machine has passed across a board twelve inches wide, and is to be used for boards of twelve feet in length. The next wheel, which may be numbered 14, will turn the dial suitably for recording the measure of a board fourteen feet long when the machine has been drawn along the bar *a* the width of the board, and so on, as many of the wheels *s* and racks *d* being used as preferred.

The measure of pieces double the length for which any one of the wheels *s* is provided may be obtained by measuring them twice.

To measure one and one-fourth inch stuff, proceed as with inch stuff and add one-fourth, and so on for other thicknesses. If a given number of feet is wanted of one and one-fourth inch stuff, measure out four-fifths of the amount. When the measure of a board has been so taken, the bar *a* is drawn back by a spring, *a'*, attached at one end to the shaft *q* and at the other end to the case of the machine, so as to be coiled up when the bar is drawn out and to withdraw the bar by its recoil. To prevent the dial from being turned back by this spring, the worm *t* is connected to shaft *q* by a ratchet, *b'*, on the inner rim, *d'*, of a disk, *e'*, by which the worm is driven forward but the shaft allowed to turn back independently of the worm, and the ratchet *f'* and pawl *g'*, exterior to said rim *d'*, hold the worm against back action by the shaft *q*, in the end of which worm *t* has a bearing, *x'*.

The shaft *u* of the dial *p* has a set-screw, *h'*, to screw up against it in the bearing *i'* to take up any slack motion, to prevent the dial from having play that would render it inaccurate in the register, and the dial is held in gear with the worm by a spiral spring, *k'*, on the shaft, which is fitted so as to be lifted up by its extension *y'*, to disconnect the worm-wheel *j'* from the worm *t* when it is desired to turn the dial back for the beginning of a new count. Another dial, *l'*, is applied for increasing the range of the register, to be turned one degree for every full revolution of dial *p* by a striker, *m'*, said dial *l'* being provided with a holding-pawl, *n'*, and a stationary pointer, *o'*, serves for both dials. This dial *l'* may be turned back for a new count at any time that it is not engaged with striker *m'*.

It is designed to make the notches in the ratchet *c* quite fine, so that the measure will be accurate to the twentieth part of a foot or less. It is also designed to have the under side or the edge of the bar *a* figured with a scale of lineal measure in inches and fractions of inches, so that by connecting the No. 12 pinion the machine becomes an adding-machine, which will add whole numbers and fractions correctly by pulling out the bar *a* to the number on the scale to be added and returning it for each number, and will also enable one to tell the number of feet in a board of given dimensions without mental calculations.

It will be seen that this improved machine will save much mental calculation, particularly by adding the fractions, making no mistakes, and it can be manipulated readily by the left hand of the operator, leaving the other one free to handle the lumber. It secures greater accuracy in measure, as with the common board-rule the fractional parts of a foot are not counted. It can also be operated by any one who can read figures and tell the length of a board, no matter whether he can add or not.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a lumber-measure, of a rack-bar, *a*, a system of differential wheels, *s*, and recording mechanism, substantially as herein described, the said differential wheels being proportioned for different lengths of timber and geared for interchangeable connection between the rack-bar and the recording mechanism, substantially as described.

2. The combination, in a lumber-measure, of a rack-bar, *a*, having hook-head *b*, ratchet *c*, pawl *i*, and a series of toothed racks, *d*, with a system of differential wheels, *s*, interchangeably connecting said ratchet-bar with the recording mechanism, substantially as described.

3. The combination, in a lumber-measure, of the rack-bar *a*, differential wheels *s*, and recording mechanism, the shaft *t*, by which the recording mechanism is operated, being connected with the measuring-wheels by a ratchet and pawl, *b' c'*, substantially as described.

4. The combination, in a lumber-measure, of the bar *a*, differential wheels *s*, shaft *q*, and the retracting-spring *a'*, substantially as described.

5. The combination of the recording-dial *p* with the measuring-wheels *s* and bar *a*, said dial being geared therewith by a worm, *t*, and worm-wheel *j'*, arranged for disconnecting and resetting the dial by raising the dial-shaft, substantially as described.

6. The combination, in a lumber-measure, of the rack-bar *a* and differential wheels *s*, arranged in a case, *e*, and a handle, *f*, substantially as described.

7. The combination, in a lumber-measure, of a rack-bar, *a*, differential wheels *s*, shaft *q*, and connecting-key *w*, arranged in a case, *e*, and handle *f*, adapted to enable the key to be shifted by the thumb of the hand in which the instrument is held by the handle *f*, substantially as described.

EMMET N. BARBER.

Witnesses:

MARVIN KENT,
FRED. M. WILLIARD.