

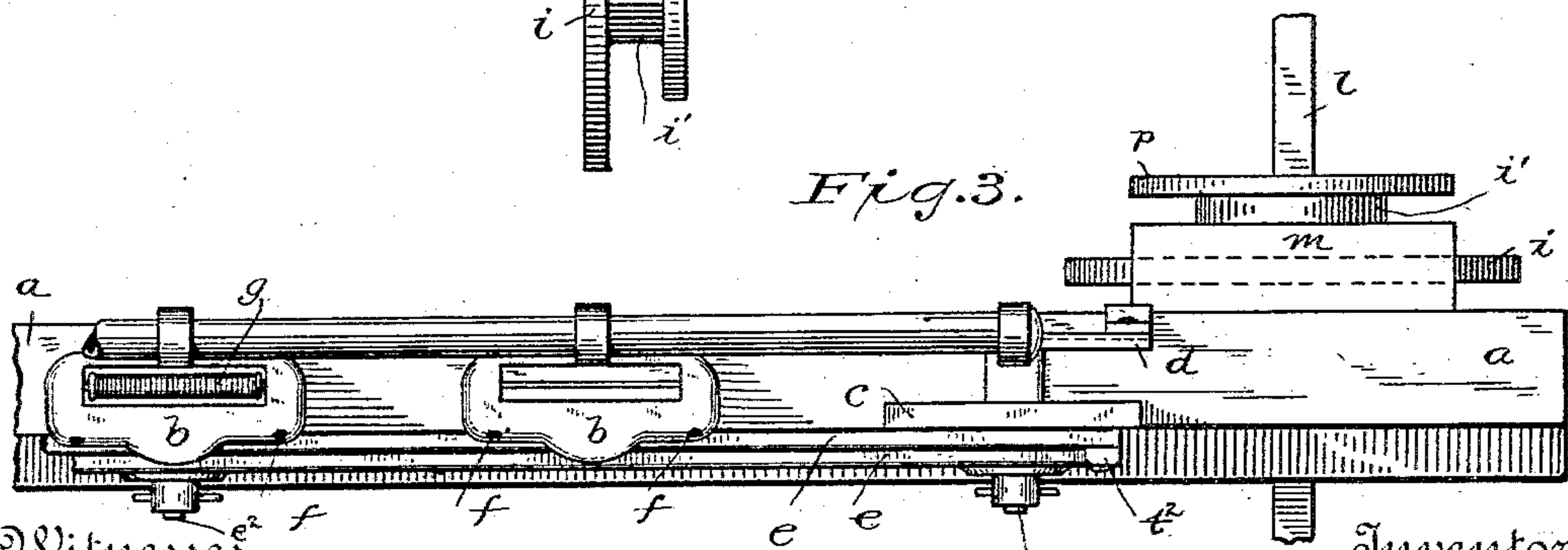
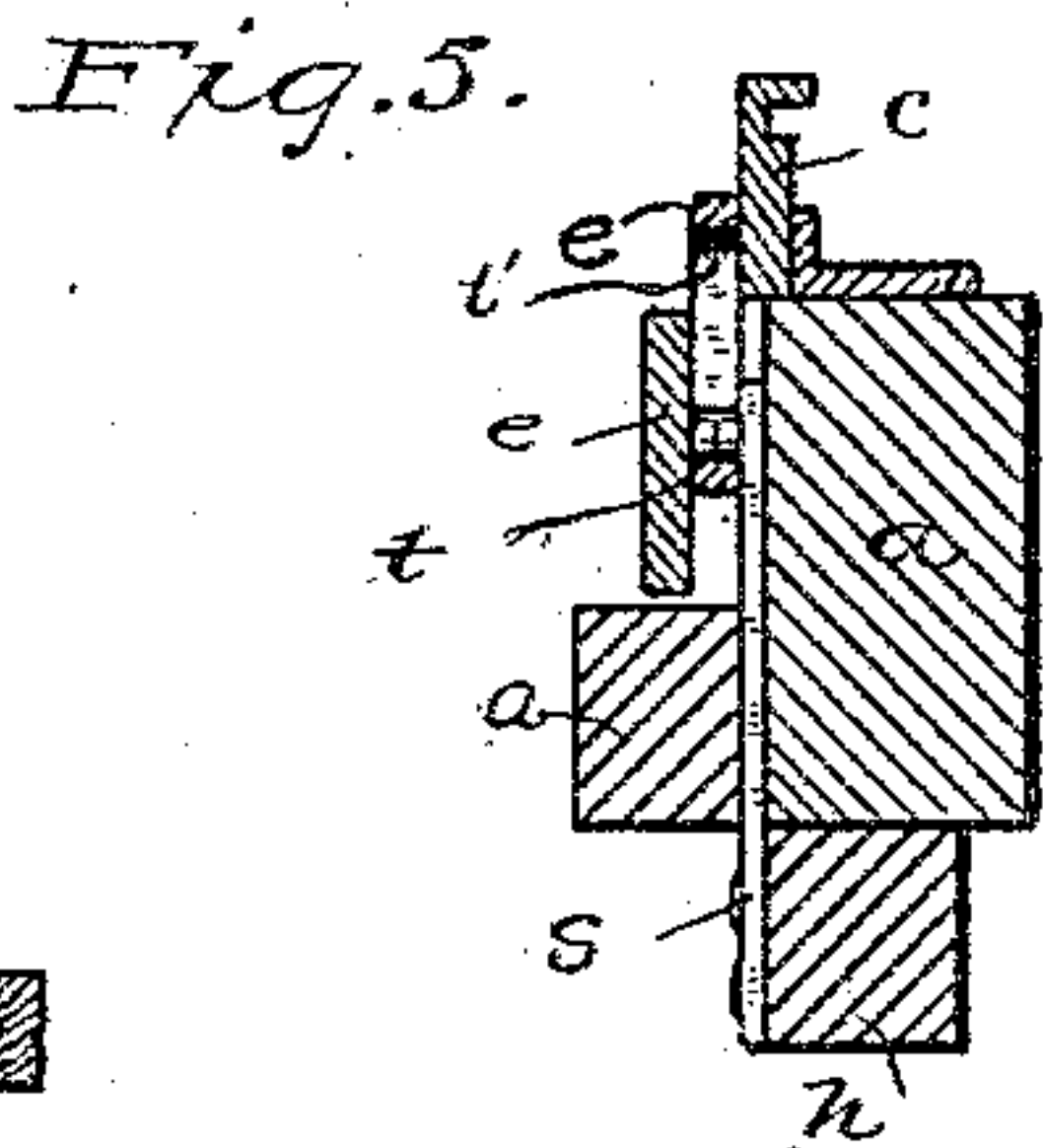
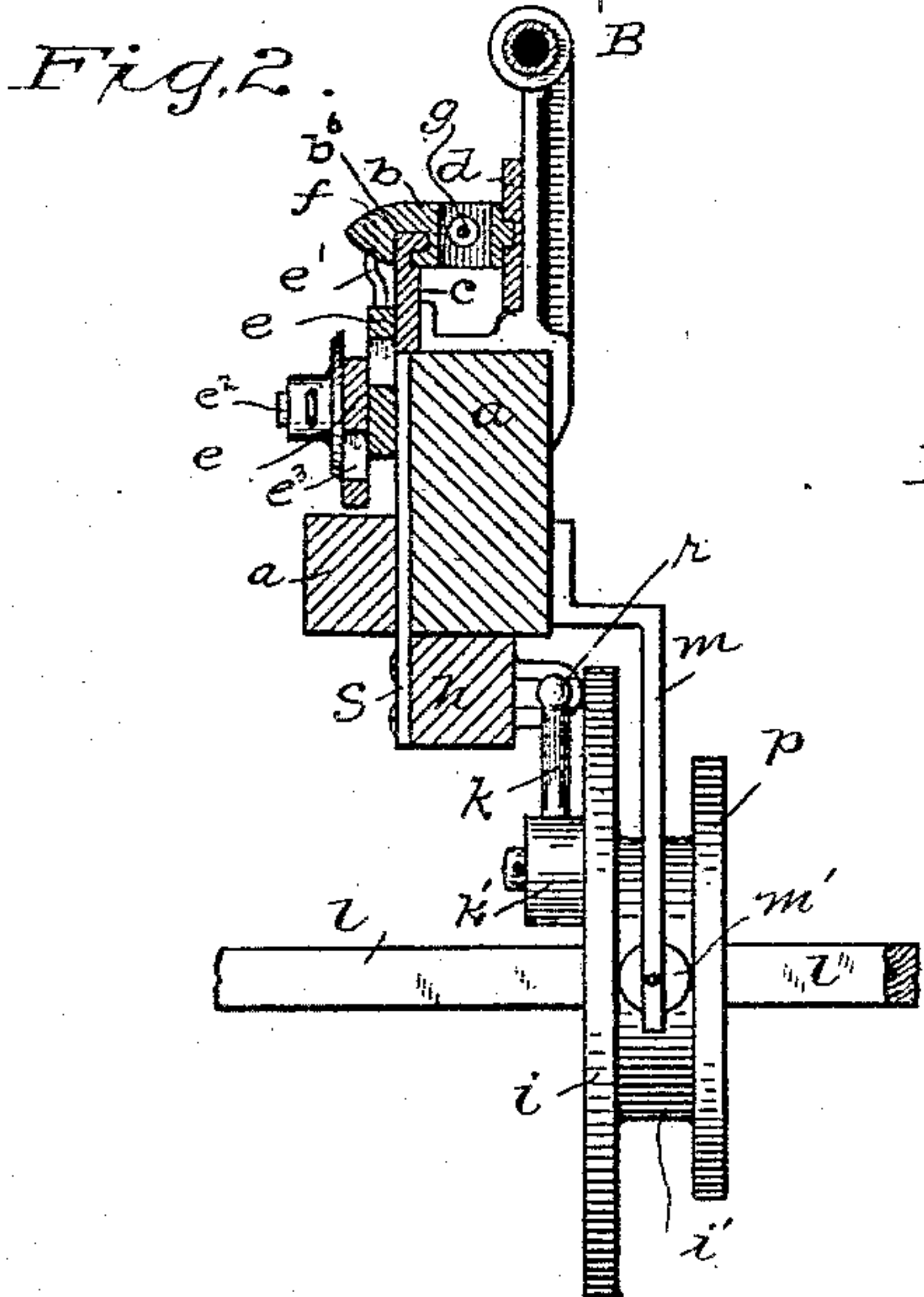
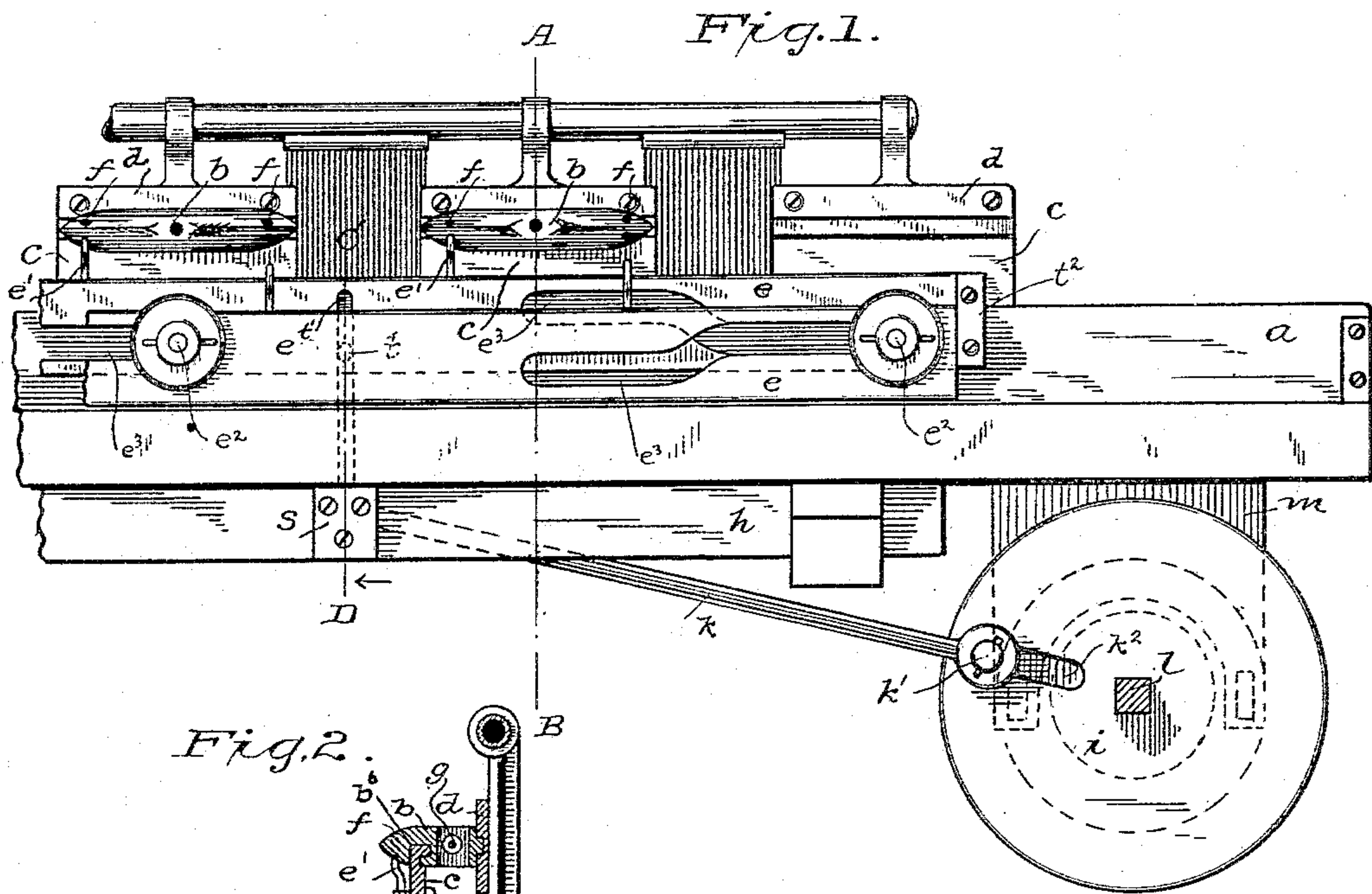
J. T. COOKE & J. L. BOTTOMLEY.

V. LINES, Administratrix of J. T. COOKE, deceased.

SHUTTLE AND OPERATING DEVICE THEREFOR, FOR NARROW WARE LOOMS.

No. 387,863.

Patented Aug. 14, 1888.



Witnesses,

H. A. Lamb.

J. J. Hollamer.

Inventors:

John Thomas Cooke,

James Leech Bottomley

By:

J. L. Bottomley, Attorney.

(No Model.)

2 Sheets—Sheet 2.

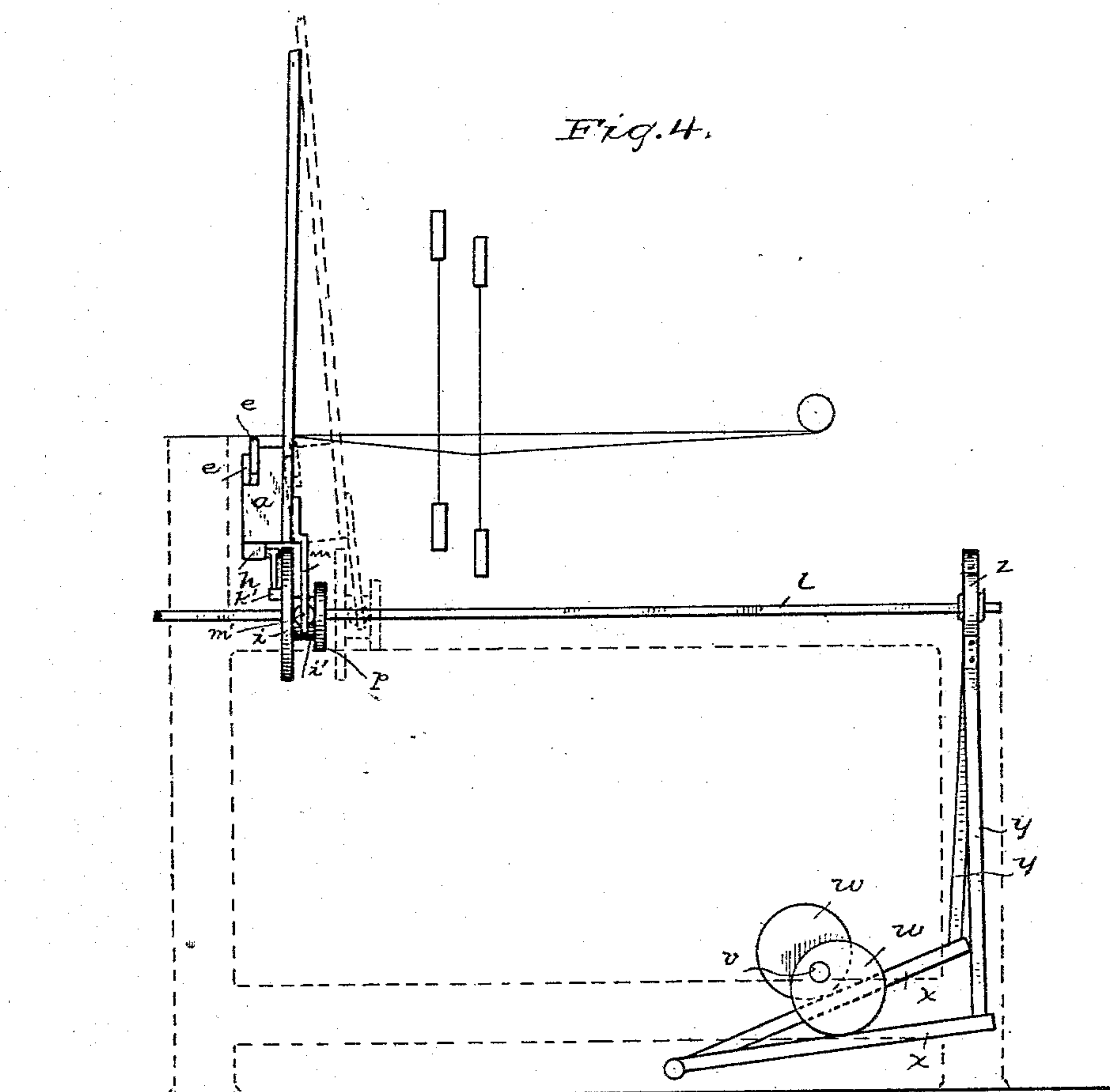
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James Lech Bottomley,

Per: J. L. Bottomley, Attorney.



# UNITED STATES PATENT OFFICE.

JOHN THOMAS COOKE AND JAMES LEECH BOTTOMLEY, OF PRESTWICH,  
NEAR MANCHESTER, COUNTY OF LANCASTER, ENGLAND; VIOLETTA  
LINES ADMINISTRATRIX OF SAID JOHN THOMAS COOKE, DECEASED.

SHUTTLE AND OPERATING DEVICE THEREFOR FOR NARROW-WARE LOOMS.

SPECIFICATION forming part of Letters Patent No. 387,863, dated August 14, 1888.

Application filed April 21, 1885. Serial No. 162,976. (No model.) Patented in England August 6, 1884, No. 10,988; in France May 5, 1885, No. 168,709; in Belgium May 6, 1885, No. 68,794, and in Italy October 22, 1885, No. 18,969.

*To all whom it may concern:*

Be it known that we, JOHN THOMAS COOKE and JAMES LEECH BOTTOMLEY, of Prestwich, near Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Shuttles and Operating Devices Therefor for Narrow-Ware Looms, (for which we have obtained Letters Patent in Great Britain August 6, 1884, No. 10,988; France May 5, 1885, No. 168,709; Belgium May 6, 1885, No. 68,794, and Italy October 22, 1885, No. 18,969;) and we do hereby declare that the following is a full, clear, and exact description thereof.

The object of our invention is to produce an improved construction of shuttle and its actuating devices, whereby the motion of a shuttle in a loom is rendered steadier and more even than heretofore. We attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a part of a narrow-ware loom, showing our invention. Fig. 2 is a view of the same from the right of Fig. 1, in section, on the line A B, Fig. 1. Fig. 3 is a plan view of the parts shown in Fig. 1. Fig. 4 is a partial side view of a narrow-ware loom, the frame being shown in dotted lines, showing the apparatus attached and actuated by treadles; and Fig. 5 is a section on the line C D of Fig. 1.

In all the views *a* represents the batten of the loom, supported and actuated in any ordinary manner.

*b* is the shuttle, which is provided on its under side, near the front, with an angular groove or slot, *b'*, as hereinafter described, and *c* are flanged or angular strips of wood or other suitable material fixed to the front of the batten for engaging the groove in the shuttle. These strips of wood *c* are preferably right angular or L-shaped in cross-section, and the horizontal portion or flange thereof preferably extends rearwardly from the vertical portion, as shown in Figs. 2 and 5. The shuttle is also supported at the back by strips of wood, or other suitable material, *d*, attached to the back pillars, which strips are provided with suitable fillets or grooves, over or into

which, as the case may be, suitable grooves or fillets formed at the back of the shuttle fit and slide.

The shuttle *b* is actuated from the front by means of the driving-planks or "drivers" *e e* (for which Letters Patent were granted in Great Britain and Ireland to the aforesaid John Thomas Cooke in the year 1862, numbered 1,406,) which drivers are provided with pegs or pins *e' e'*, that alternately enter or take into holes *f f* in the front of the shuttle, as will be clearly understood, the drivers being alternately raised and lowered by means of pins *e'' e''*, engaging curved slots *e''' e'''* in said drivers and upon which they slide. The location of the drivers *e* at the front of the shuttle enables us to widen the latter at both ends, and so allows us to cut a larger recess for the quill *g*, whereby we are enabled to carry larger quills, which require refilling less often than smaller ones. The increased steadiness given by the angular support *c* at the front, together with the rear support at *d*, enables us to drive the loom at a much greater speed than heretofore without danger of the shuttle *b* canting and rubbing the warp or binding in place.

There is at present in common use for actuating the driving-planks of a small-ware loom what is usually termed a "strap," which consists of two leather straps, one end of each of which is attached to the bottom driver and the other ends of which are attached to a drum upon a shaft, which receives reciprocating motion from a pair of treadles actuated by cams or other similar appliances attached to or driven from the main shaft of the loom. The first-mentioned shaft *l* (see Fig. 4) we form square, and upon it we place a sliding disk or wheel, *i*. To the back of the hub *i'* of this wheel or disk is fixed a flange, *p*. A friction-roller, *m'*, carried upon an arm, *m*, attached to the back of the batten *a*, works between the disk *i* and flange *p*, sliding them to and fro upon the shaft *l* as the batten swings.

Beneath the batten *a* is guided in suitable slides a sliding beam, *h*, which we term the "bottom driver." This beam is connected to the disk *i* and receives a longitudinally-reciprocating motion therefrom, through the con-



necting-rod *k*, pivoted at one end by a ball-joint, *r*, to said bottom driver and at the other to a bolt or stud, *k'*, secured in a radial slot, *k''*, in said disk *i*. To the bottom driver *h* is  
 5 attached an upright rod, *s*, which extends through a slot in the batten and is provided with a forwardly-extending pin, *t*, at its upper end. This pin *t* takes into a vertical slot, *t'*, in the rear driving-plank, *e*, and imparts longitudinal motion thereto, while the blocks or  
 10 lugs *t''* at the ends of said rear driver and on its face engaging the ends of the front driver also impart a longitudinal motion thereto, both drivers rising and falling as may be necessary  
 15 meanwhile.

In Fig. 4, *v* indicates one of the operative shafts of the loom; *ww*, two cams thereon working treadles *xx* with an alternating motion, and *yy* straps connecting the free ends of said  
 20 treadles with opposite sides of the drum *z* upon shaft *l*, whereby said shaft is caused to oscillate as desired. The dotted lines in this figure show the swing of the batten and disk.

Having thus described our invention, what  
 25 we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the batten *a* and the grooved strips *d* and flanged strips *e*, of the shuttle *b*, having an angular slot in its under  
 30 face near the front for the reception of said flanged strips *e*, and engaging at its rear side in the grooves of said strips *d*, substantially as described.

2. The combination, with the batten *a* and the grooved strips *d* and flanged strips *e*, of the shuttle *b*, having an angular slot in its under  
 35 face near the front for the reception of said flanged strips *e*, and engaging at its rear side in the grooves of said strips *d*, and the driving-planks *e e*, substantially as described.  
 40

3. The combination, with the batten *a* and the grooved strips *d* and flanged strips *e*, of the shuttle *b*, having an angular slot in its un-

der face near the front for the reception of said flanged strips *e*, and engaging at its rear side  
 45 in the grooves of said strips *d*, and the driving-planks *e*, carrying pins *e'*, connecting with the front of the shuttle, substantially as described.

4. The combination, with the batten *a*, the grooved strips *d*, supported at the back thereof, and the L-shaped strips *e*, supported at the front thereof, of the shuttle *b*, having a right-  
 50 angular slot in its under face near the front for the reception of said L-shaped strips *e*, the horizontal portion of said slot extending rearwardly from the vertical portion, said shuttle also engaging at its rear side in the grooves of  
 55 the strips *d*, substantially as described.

5. The combination, with the disk *i*, of the square shaft *l*, the batten *a*, having the arm *m*, the lower driver, *h*, the rod *k*, connecting said  
 60 disk and lower driver, the driving-planks *e e*, shuttle *b*, and arm *s*, carried by said lower driver and engaging one of said planks, substantially as described.  
 65

6. The combination, with the square shaft *l*, the disk *i*, having hub *i'*, and the flange *p*, all on said shaft, and means for oscillating the shaft  
 70 *l*, of the batten *a*, arm *m*, connected thereto and carrying roller *m'*, adapted to fit between said disk and flange, the lower driver, *h*, crank-pin *k'* in said disk, rod *k*, connecting said lower driver with said crank-pin, arm *s*, carried by said lower driver, the driving-planks  
 75 *e e*, operated by said arm *s*, and shuttle *b*, driven by said planks, the whole arranged to operate substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands.

JOHN THOMAS COOKE.  
 JAMES LEECH BOTTOMLEY.

Witnesses:

JOHN HENRY TOPHAM,  
 JNO. STOTT.