

(No Model.)

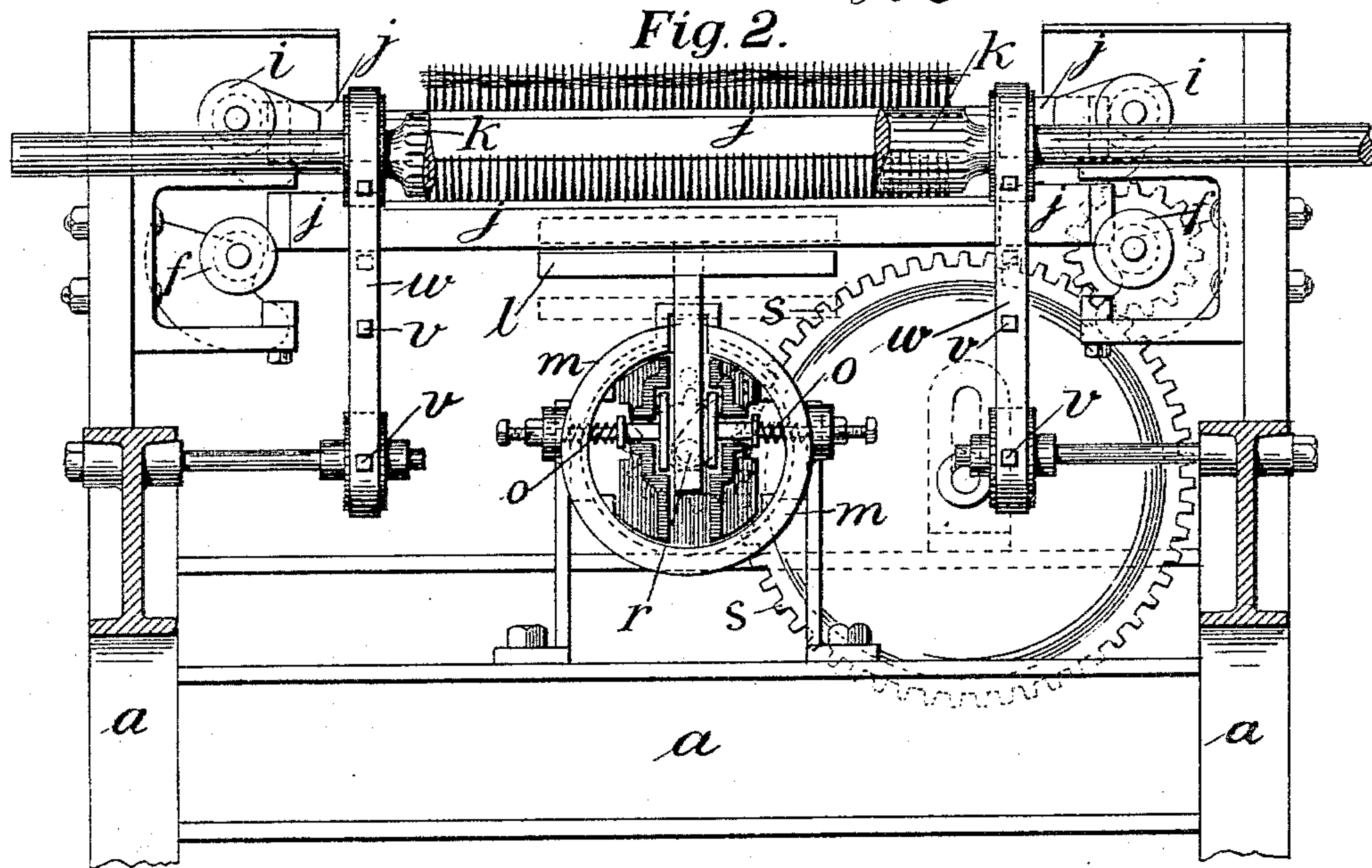
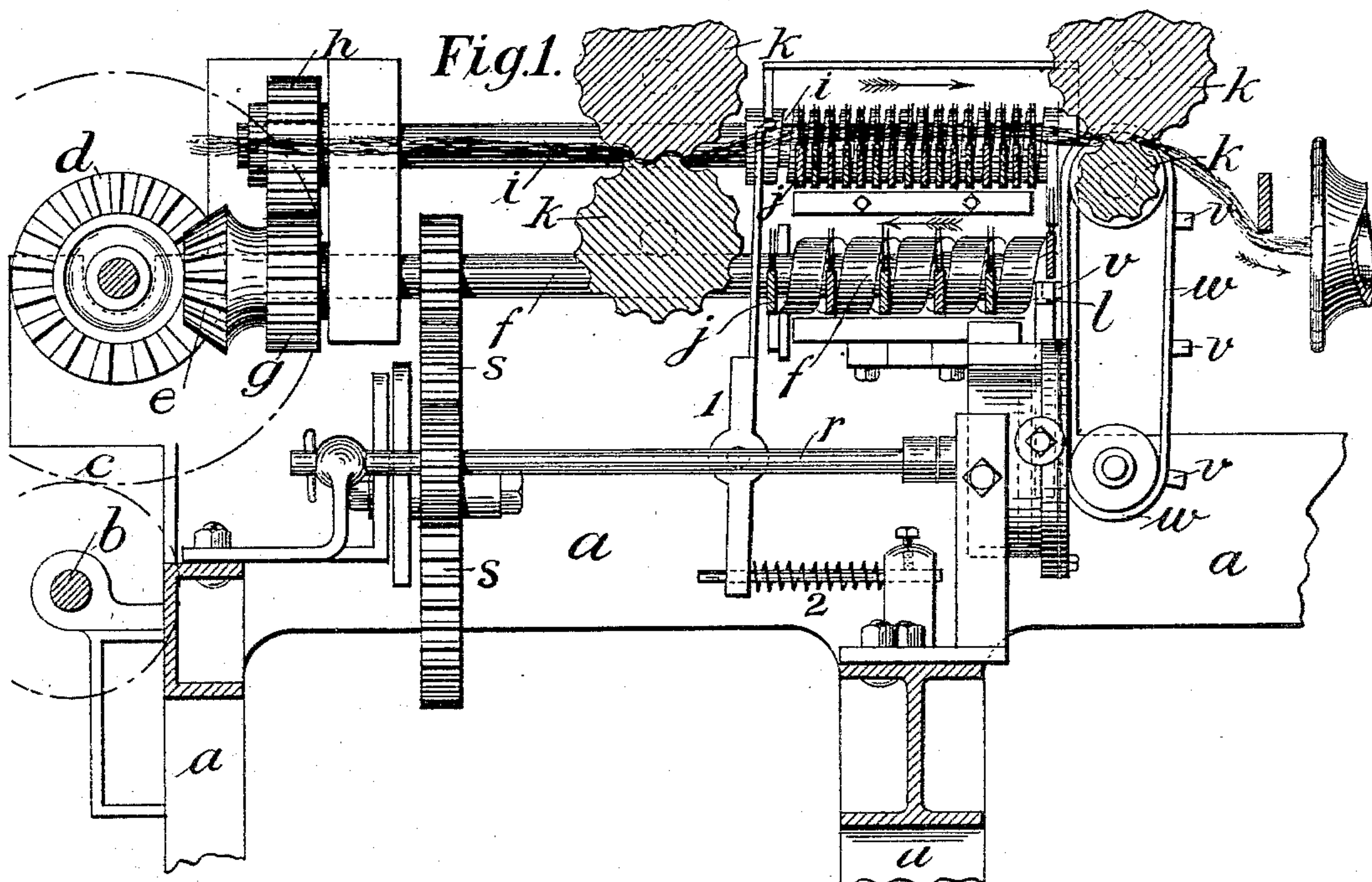
2 Sheets—Sheet 1.

J. STAKE.

DEVICE FOR LOWERING THE FALLERS IN GILL BOXES, &c.

No. 388,739.

Patented Aug. 28, 1888.



WITNESSES:

J. D. Caplinger
E. B. Bolton,

INVENTOR:

J. Stake
By Henry Conner,
Attorney

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2 Sheets—Sheet 2.

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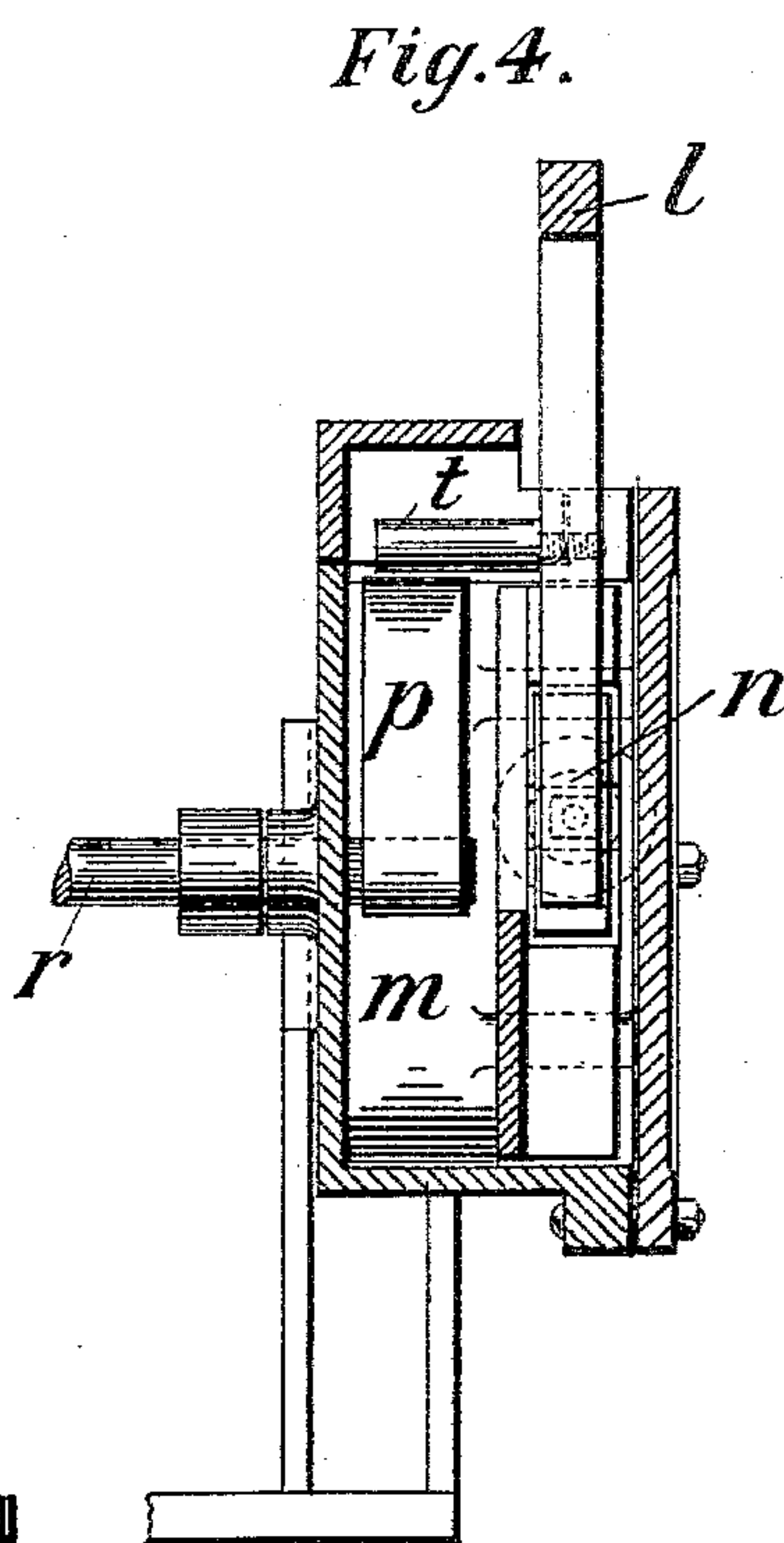
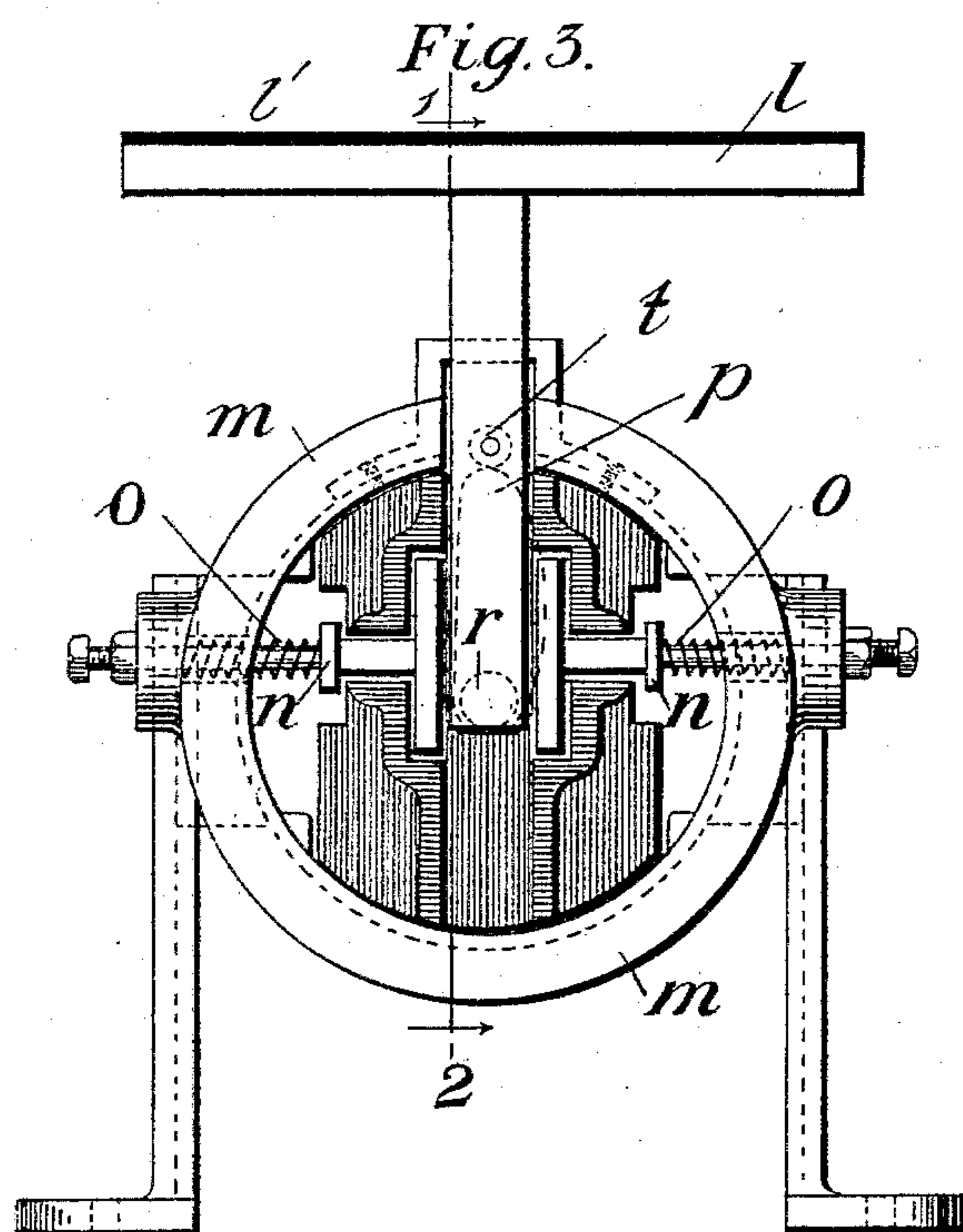
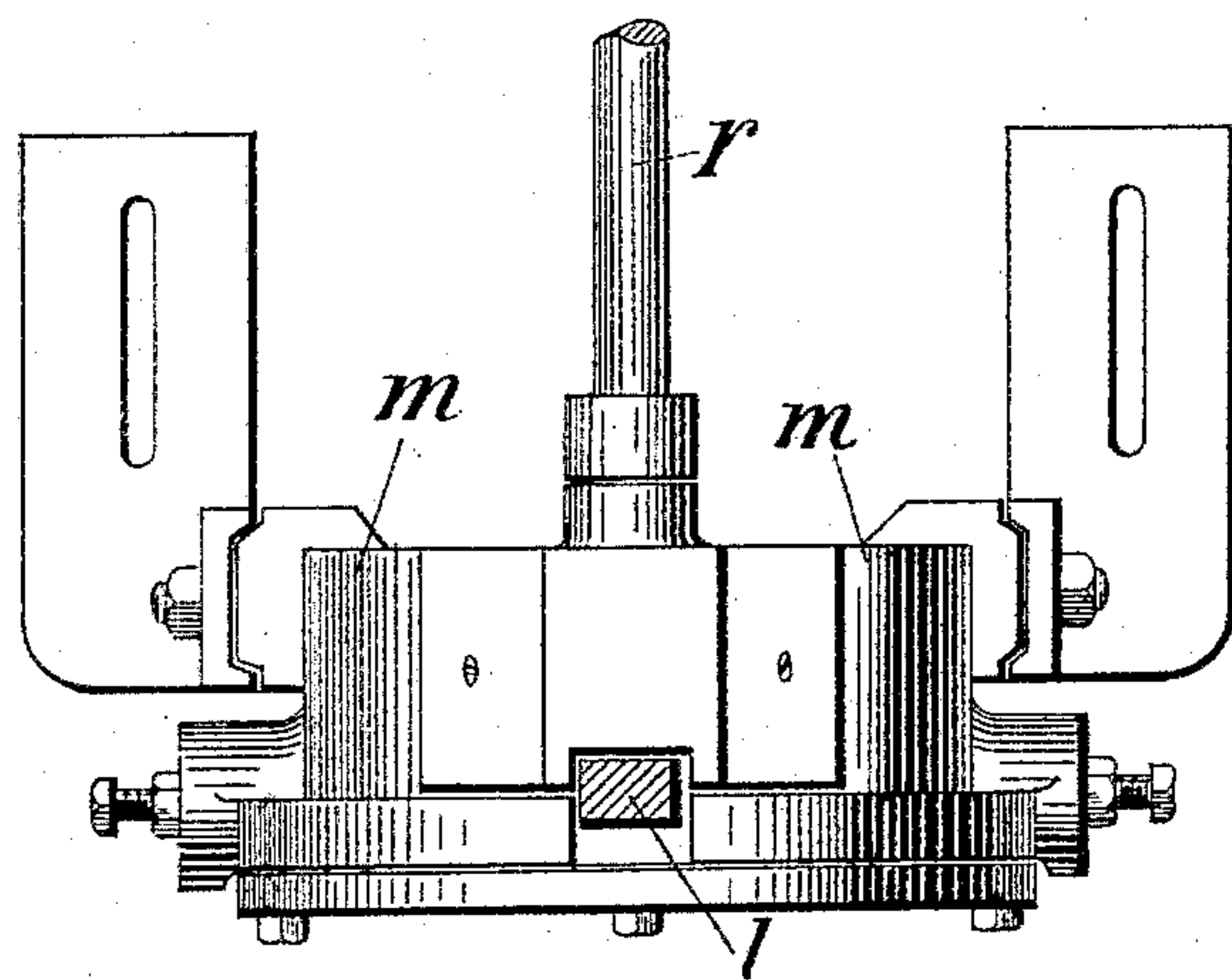


Fig. 5.



WITNESSES:

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By Henry Comstock
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UNITED STATES PATENT OFFICE.

JOB STAKE, OF HALIFAX, COUNTY OF YORK, ENGLAND.

DEVICE FOR LOWERING THE FALLERS IN GILL-BOXES, &c.

SPECIFICATION forming part of Letters Patent No. 388,739, dated August 28, 1888.

Application filed March 17, 1888. Serial No. 267,585. (No model.) Patented in England December 13, 1887, No. 17,126.

To all whom it may concern:

Be it known that I, JOB STAKE, a subject of the Queen of Great Britain, residing in Halifax, Yorkshire, England, have invented certain new and useful Improvements in Devices for Lowering the Fallers in Gill-Boxes, &c., employed for preparing wool and other fiber, (for which a patent has been granted in Great Britain, dated December 13, 1887, No. 17,126,) of which the following is a specification.

My invention has reference to the fallers employed in this class of machines; and it consists in a new form of apparatus for receiving each faller as it drops from the upper screws to the lower screws.

In order that my invention may be better understood, I will now make reference to the accompanying sheets of drawings illustrative thereof, wherein—

Figure 1 is longitudinal sectional elevation of a screw gill-box employed in preparing wool and other fiber; and Fig. 2 is an end view thereof, parts being broken away. The gill-box illustrated in these views embodies my invention. Figs. 3, 4, and 5 are detail views on a scale double that of the principal figures, illustrating one of the features of my invention. Fig. 3 is a face view of the part as seen, also, in Fig. 2. Fig. 4 is a section on line 1 2 in Fig. 3, and Fig. 5 is a sectional plan.

a is the frame-work of the machine, and *b* the main driving-shaft, which, by means of spur-wheels *c*, gives rotary motion to the bevel-wheels *d*, which drive bevel-wheels *e* and consequently the lower or bottom screws, *f*. On each one of the screw-shafts *f* is fixed a spur-wheel, *g*, driving the corresponding spur-wheel, *h*, and screw-shaft *i*. *j* represents fallers or bars carrying "heckle-pins," the ends of such fallers entering into the threads of the screws *f* and *i*, and are caused to travel in the direction of the arrows in Fig. 1, for the purpose of lashing out, straightening, or combing the fiber, which passes through two pairs of fluted feed-rollers, *k*, all of which parts are arranged in the ordinary manner and form no part of my invention.

As previously stated, the object of my invention is to receive the fallers *j* when they reach the end of the screws *i*, so as to carry such fallers gently down to the bottom screws,

f, without noise and concussion; and this I carry out by the employment of the T-headed bar *l*, the vertical part of which enters into a suitably-shaped box or casing, *m*, which, together with its appurtenances, is illustrated best in Figs. 3, 4, and 5. This casing *m* is simply a drum-like box mounted on supports on the frame-work. It serves to house and provide a support for the mechanism that will now be described. The vertical part of the T-headed bar *l* enters the case *m*, and it works up and down between two horizontal T-headed bars, *n*, which are forced against the vertical bar *l* by spiral springs *o*, thus constituting frictional supports or spring-clamps, the pressure of which is sufficient to retain the bar *l* in any position it has been lowered to by the descending faller. Therefore, when a faller has reached the end of its traverse in the upper screws, *i*, it commences to descend and is received by the horizontal part of the T-headed bar *l*, the weight of the said faller being sufficient to force the bar softly down to its bottom position, ready to be received by the lower screws, *j*, and when this is done the T-headed bar is lifted back again by a revolving cam, *p*, fixed on the shaft *r*, driven by spur-wheels *s* from a pinion on one of the lower screw-shafts, *f*, as seen in Figs. 1 and 2. This revolving cam is timed and shaped so that as soon as the T-headed bar *l* has carried the faller to its bottom position the cam comes into action and operates against the pin *t*, (see Figs. 3 and 4,) projecting from the T-headed bar *l*, whereby such cam lifts up the said bar into its higher position again, so as to be ready to receive the next faller, and this goes on one after another, the said fallers forcing the bar downward and the cam lifting the bar upward continuously.

In this class of machines it is customary to employ a vertical finger, similar to 1 in Fig. 1, for the purpose of guiding the fallers as they descend from the upper screw to the lower screw for the purpose of guiding them as they drop; and in practice I have found that when the faller is descending from the upper to the lower screw, and when such faller gets to the space between the two screws, the finger 1, which is forced by the spiral spring 2, carries or forces the faller into the open space, while at the same time the upper end of the finger

1 strikes against the next succeeding faller, causing noise thereby, and this is repeated every time each faller arrives at the end of the upper screws ready for falling to the lower screws.

In order to dispense with the finger 1, I employ at each side of the machine endless chains or belts *u*, provided with lugs or projections *v*, the distance apart of such lugs being equal to the depth from one screw to the other, so that as the fallers are received at the top of the T-headed bar *l* they are also received on the projecting lugs *v*, which assist in carrying the fallers down vertically from the upper to the lower screw without any noise; consequently I now dispense with the vertical finger which is now employed, and the noise accompanying its use is avoided.

For the purpose of more effectually deadening the sound of the faller when it drops upon the upper surface of the T-headed bar, such upper surface may be covered with leather or other pliable substance, *l'*, as indicated in Fig. 3.

By the employment of apparatus as herein described and illustrated, the noise occasioned by gill-fallers dropping onto a dead-surface from one set of screws to another is now avoided, and the breakages frequently happening to the fallers by the sudden stoppage thereof when dropping are also prevented, and the loosening of the pins in gills or fallers, also occasioned by the sudden dropping, will not now happen.

I claim as my invention—

1. The combination, with the upper and lower screws and the fallers, of a bar which,

as the fallers arrive at the end of the upper screws, receives and automatically carries such faller down to the lower screws, means for raising said bar, and frictional supports therefor, substantially as set forth.

2. The combination, with the upper and lower screws and the fallers, of the bar for carrying the fallers down from the upper to the lower screws, spring-clamps which bear frictionally on the said bar, whereby its own weight is neutralized by friction, and means for raising said bar after its descent, substantially as set forth.

3. The combination, with the upper and lower screws and the fallers, of the T-headed bar *l*, provided with a pin, *t*, the horizontal clamping-bars *n*, which bear on opposite sides of the upright of said bar *l*, their springs *o*, and the cam *p*, arranged to take under said pin *t* in lifting said bar, substantially as set forth.

4. The combination, with the screws and fallers, of the endless chains or belts *u*, arranged at the ends of the screws, and provided with properly-spaced lugs *v* to receive the fallers from the upper screws, substantially as and for the purposes set forth.

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

JOB STAKE.

Witnesses:

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