

W. Mason. Power Loom.

N^o 10,135.

Patented Oct. 18, 1853.

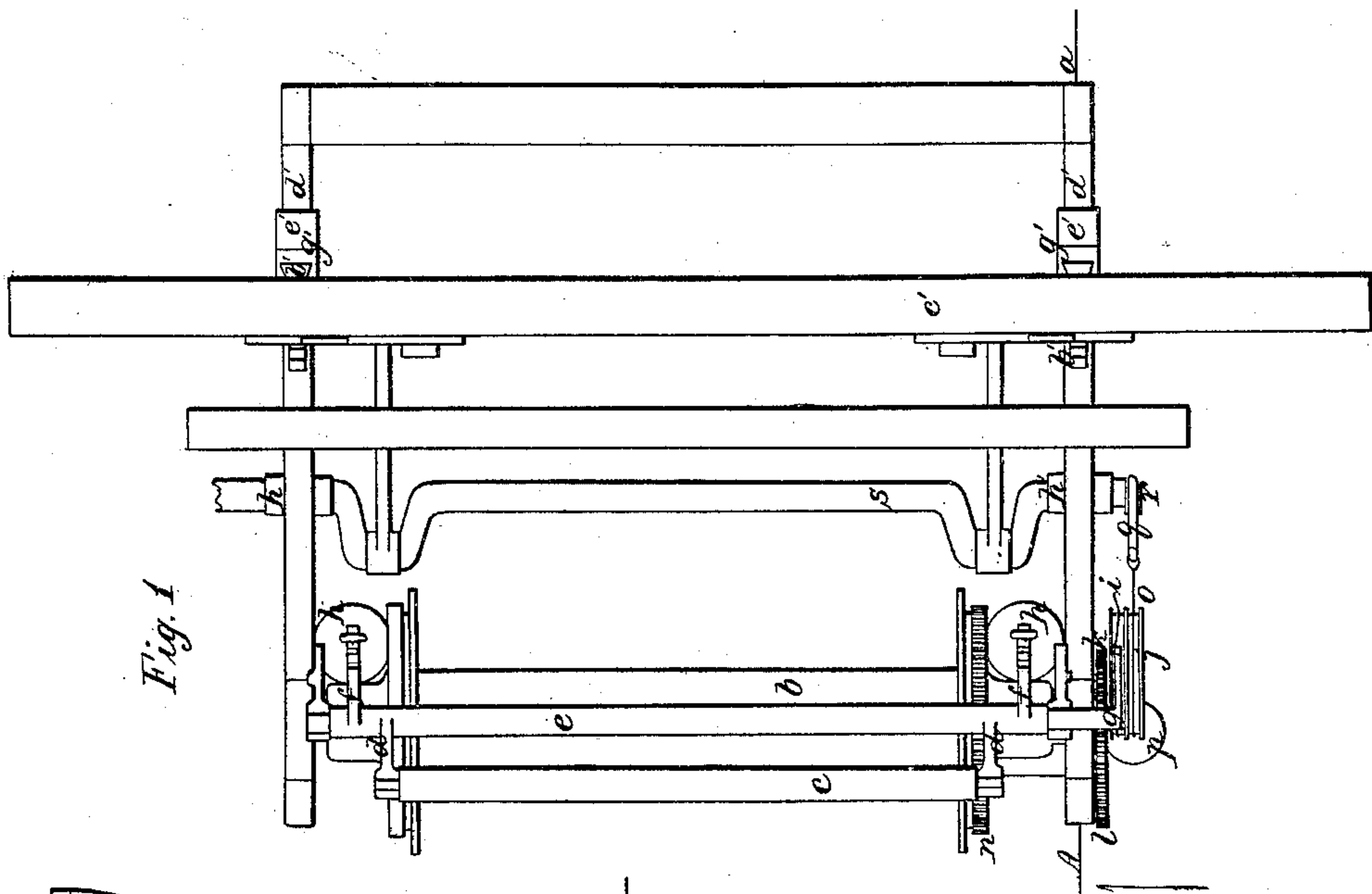


Fig. 1

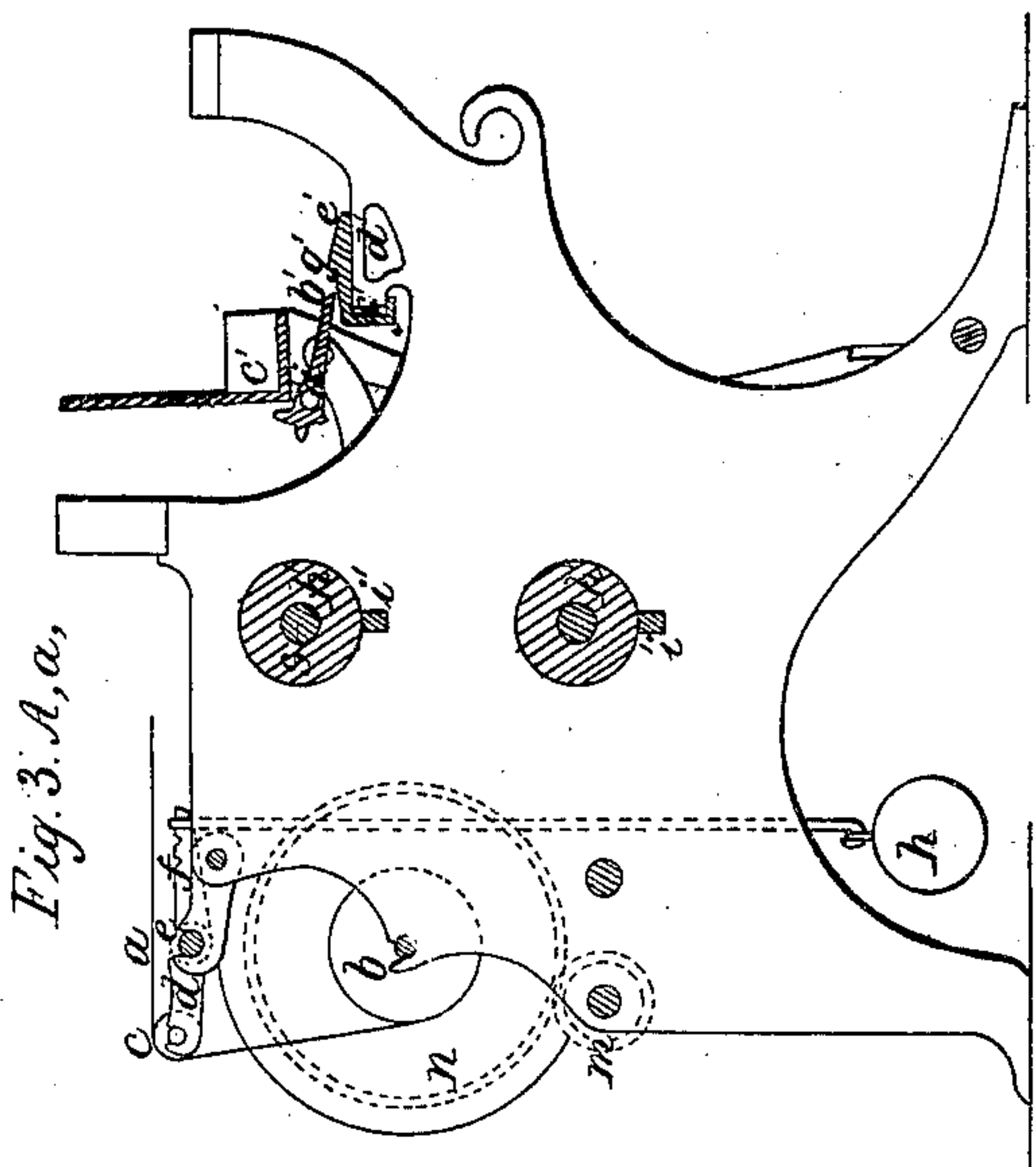


Fig. 3. A, a,

Fig. 4. B, b

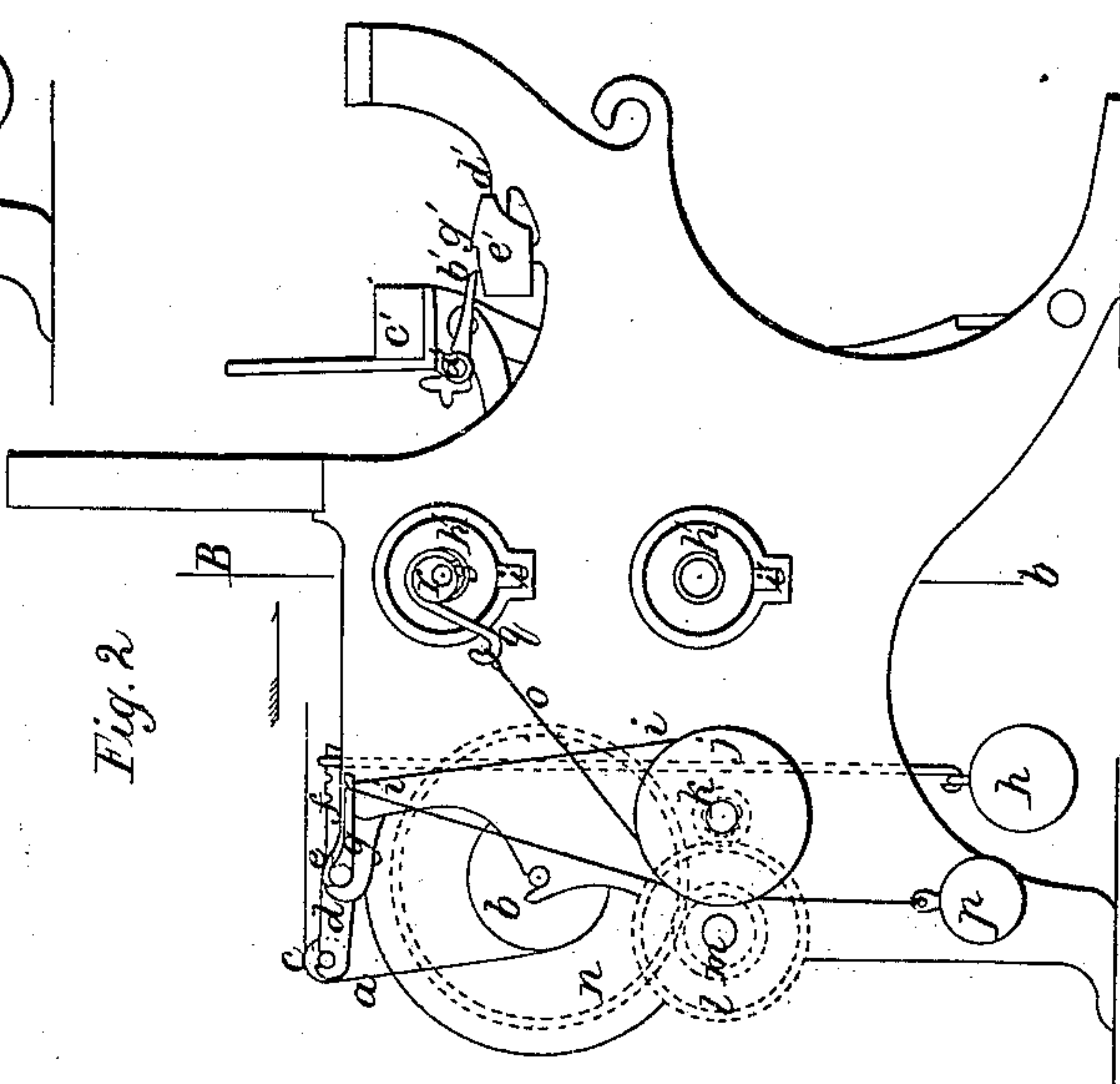
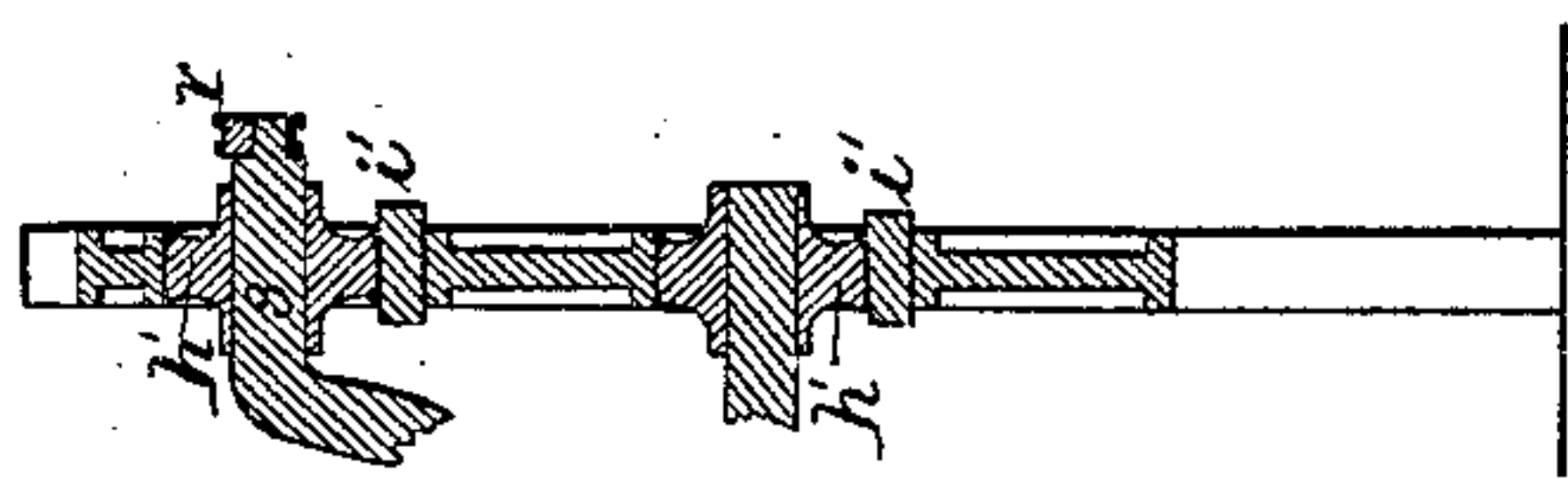


Fig. 2

UNITED STATES PATENT OFFICE.

WILLIAM MASON, OF TAUNTON, MASSACHUSETTS.

POWER-LOOM.

Specification of Letters Patent No. 10,135, dated October 18, 1853.

To all whom it may concern:

Be it known that I, WILLIAM MASON, of Taunton, Massachusetts, have invented certain Improvements in Power-Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is a plan of so much of a power loom as is necessary to show my improvements; Fig. 2, a side elevation; Fig. 3, a vertical section in the line A—*a* of Fig. 1, and Fig. 4, another section taken at the line B—*b* of Fig. 2.

The same letters indicate like parts in all the figures.

My invention relates to an arrangement for regulating the delivery of the warps by their tension, so as to insure the weaving of fabrics of regular and uniform texture, specially intended for the finer and more delicate fabrics such as delaines, lawns, &c., and my invention consists in the employment of a whip roll, over which the warps pass from the warp beam to the breast beam, which roll is forced up by adjustable weights, when the said roll is combined by means of a friction strap or band with the periphery of a wheel which by gearing communicates the let-off motion to the warp beam, and which receives motion from a crank or eccentric from the lay or crank shaft by a weighted cord wrapped around it, so that when the whip roll is up and the friction band or strap is loose, the weighted cord, actuated by the crank or eccentric, will turn the friction wheel in both directions, and therefore will not let off the warps; but when the whip roll is drawn down, by progress of weaving, until the friction strap or band is drawn tight, the weighted cord slips in one direction on the friction wheel, and on the return motion turns it to give out the warps. In this way the delivery of the warps is regulated by the tension of the warps.

The accompanying drawings represent so much of a power loom as is necessary to exhibit the application of my improvement.

The warps *a* from the warp beam *b* pass over a whip roller *c*, hung on the ends of two arms *d*, *d*, on a rock shaft *e*, provided on the opposite side with two other arms *f*, *f*, within the frame and one *g* outside the frame. The two arms *f*, *f*, are notched to receive suspended weights *h*, *h*, which can be

hung at greater or less distance from the axis to force the whip roller up against the warps with greater or less force as may be required by the texture of the fabric to be woven, and to the other arm *g* is suspended a friction strap *i*, which passes around the periphery of a wheel *j*, which communicates motion by a train of pinions and cog wheels *k*, *l*, *m*, *n*, to the warp beam. The wheel *j* has two flat grooves in its periphery, one for the friction strap *i*, and the other for a cord *o*, which is wrapped around it with a weight *p*, at one end, the other end being connected by a yoke *q*, with an eccentric *r*, on the end of the crank or lay shaft *s*. The eccentric is so set relatively to the lay cranks as to pull the weighted cord to give the let off motion at the end of the beating up motion, that is when the shed is being opened. When the friction strap *i* is not drawn tight, the weight *p* keeps the cord *o* so tight that the friction induced will cause the wheel to be turned back and forth at each turn of the eccentric, thus causing the warp beam to yield and draw back the warps to correspond with the opening and closing of the shed, in the mean time the weights *h*, *h*, forcing the whip roller up against the warps to keep them under uniform thickness. When, however, the warps have been so far taken up by the process of weaving as to draw down the whip roller until the friction strap makes friction on the wheel *j*, this will prevent it from being turned by the weighted cord as the eccentric moves toward it, this cord sliding on the periphery of the wheel, and then as the eccentric moves in the opposite direction, the cord being drawn tight by the weight at its other end, the wheel will be turned to give out the warps which operation will be continued until the whip roller again rises sufficiently to liberate or loosen the friction strap. In this way I am enabled to regulate the delivery of the warps as required, and to keep them under a uniform tension even when opening and closing the shed, which latter is of great importance, as the opening of the shed otherwise would have the effect to vary the texture of the cloth, and to affect the delivery motion.

The protection rod *a'*, with its protector arms *b'*, *b'*, are made and hung on the race beam *c'* in the usual manner. On the sides of the frame are formed ways *d'*, *d'*, with

projecting ends at the back, and to these are fitted stops e' , e' , which slide thereon, and having sockets at their rear ends in which are fitted blocks of vulcanized india rubber
 5 f' , which bear against the projecting ends of the ways d' . On the upper surface of the stops are shoulders g' , against which the arms b' , b' , of the protector strike, when the loom is to be stopped by reason of the
 10 shuttle not boxing, and as this takes place the india rubber springs are compressed thus gradually arresting the loom; but without that injurious action which takes place when arrested by a dead blow.

15 I have found that by means of the interposed india rubber springs I am enabled to arrest the momentum of the lay without injurious shocks and within so short a space as to avoid all danger of injury to the warps.
 20 The yielding of the stops by reason of the interposition of the india rubber springs effects the shifting of the belt shipper more effectually than when the lay is arrested by a dead stop.

25 The boxes h' , for the journals of the shafts are simply cast with the periphery slightly spherical. They are bored out in a lathe to fit the journals. Sockets are cast in the frame simply to receive the cast boxes,
 30 without any finish on the periphery, and on

one side these sockets are formed with a recess to receive a wedge key i' . The shaft is put in place, the boxes slipped onto the journals and inserted in the sockets, and by reason of the spherical form of the periphery, 35 they take the proper position to avoid binding on the journal, and then they are secured in place by simply driving in the keys. This mode of making and mounting the boxes, greatly reduces the cost of mak- 40 ing them and mounting looms, and avoids all difficulty of binding on the journals.

What I claim as my invention and desire to secure by Letters Patent, is—

The method of operating the warp beam 45 to let-off the warps, and ease them in the opening of the shed, by means of the weighted cord acting on the periphery of a wheel geared to the warp beam, and receiving motion from an eccentric or its equivalent substantially as specified, in combination with 50 the mode of regulating the delivery motion by the action of the warps on a weighted whip roller acting by a friction strap on the friction wheel of the let-off apparatus, substantially as and for the purpose specified. 55

WM. MASON.

Witnesses:

WM. H. BISHOP,

CHAS. W. BAMBURGH.