

No. 763,415.

PATENTED JUNE 28, 1904.

A. McLEAN.
TENTERING MACHINE.
APPLICATION FILED JULY 10, 1903.

NO MODEL.

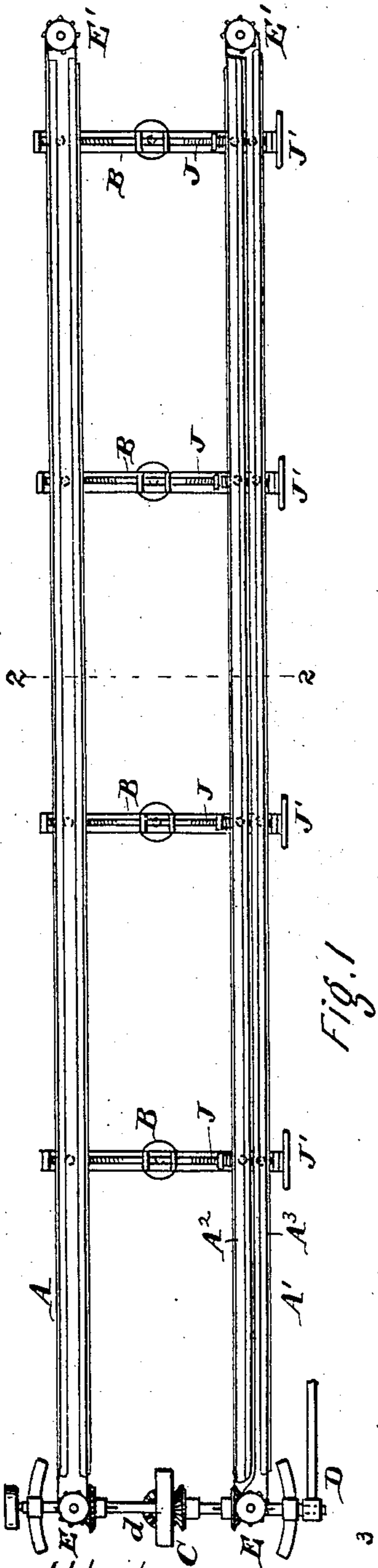


FIG. 1

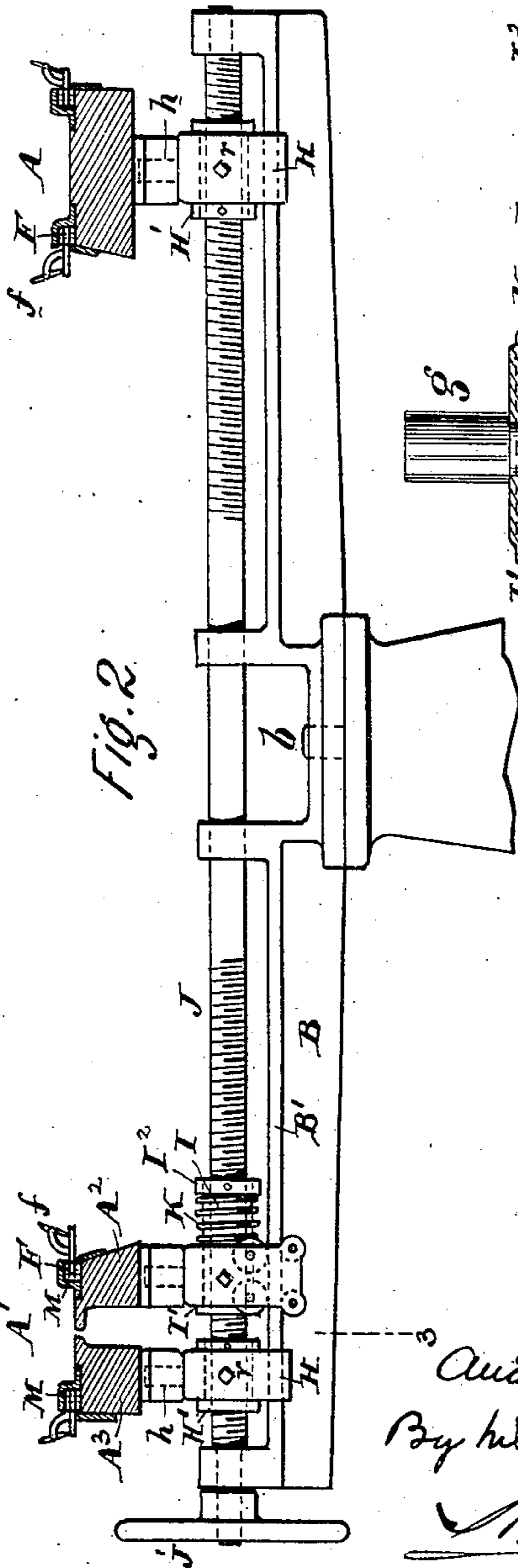


FIG. 2

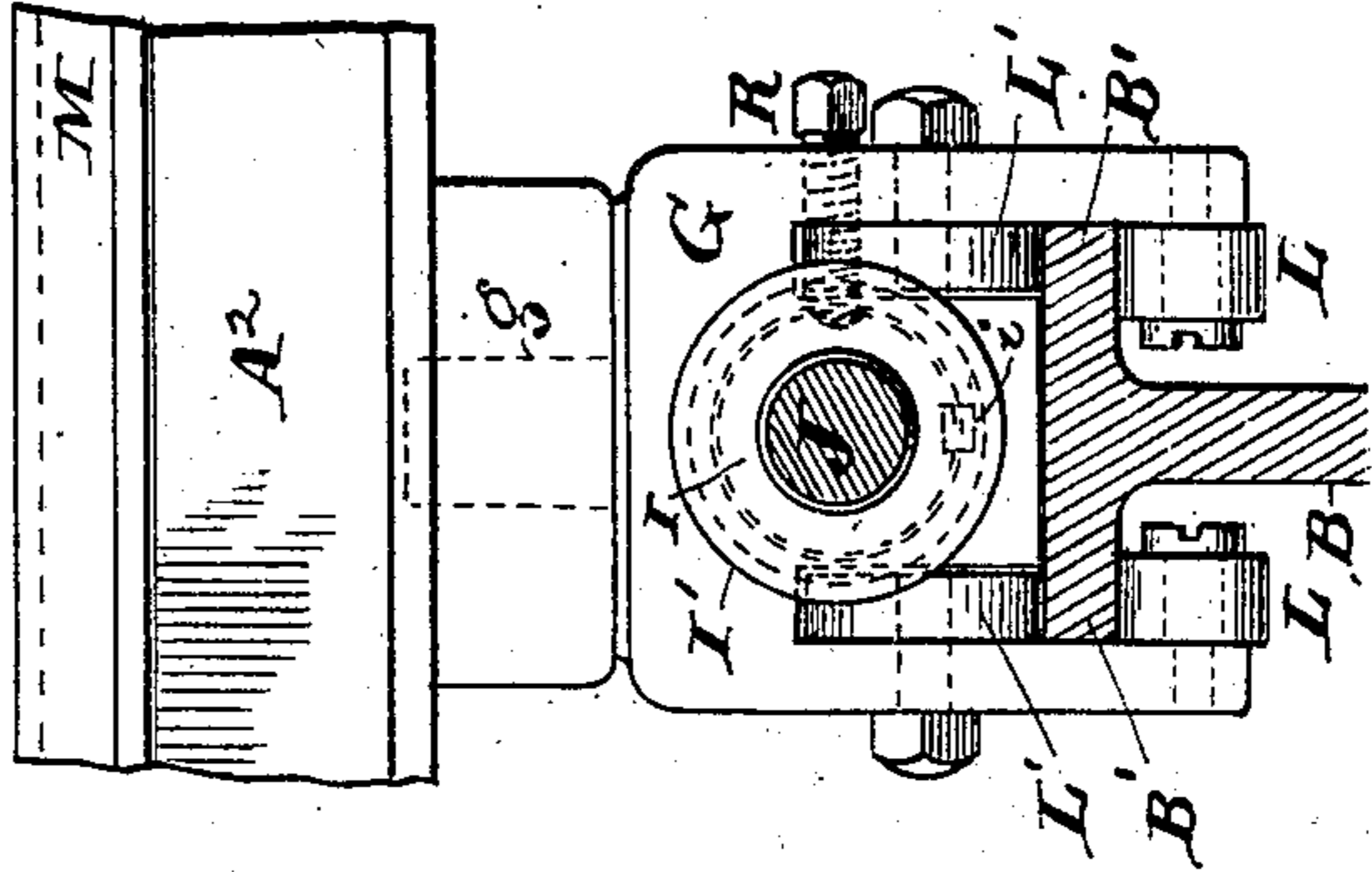


FIG. 3

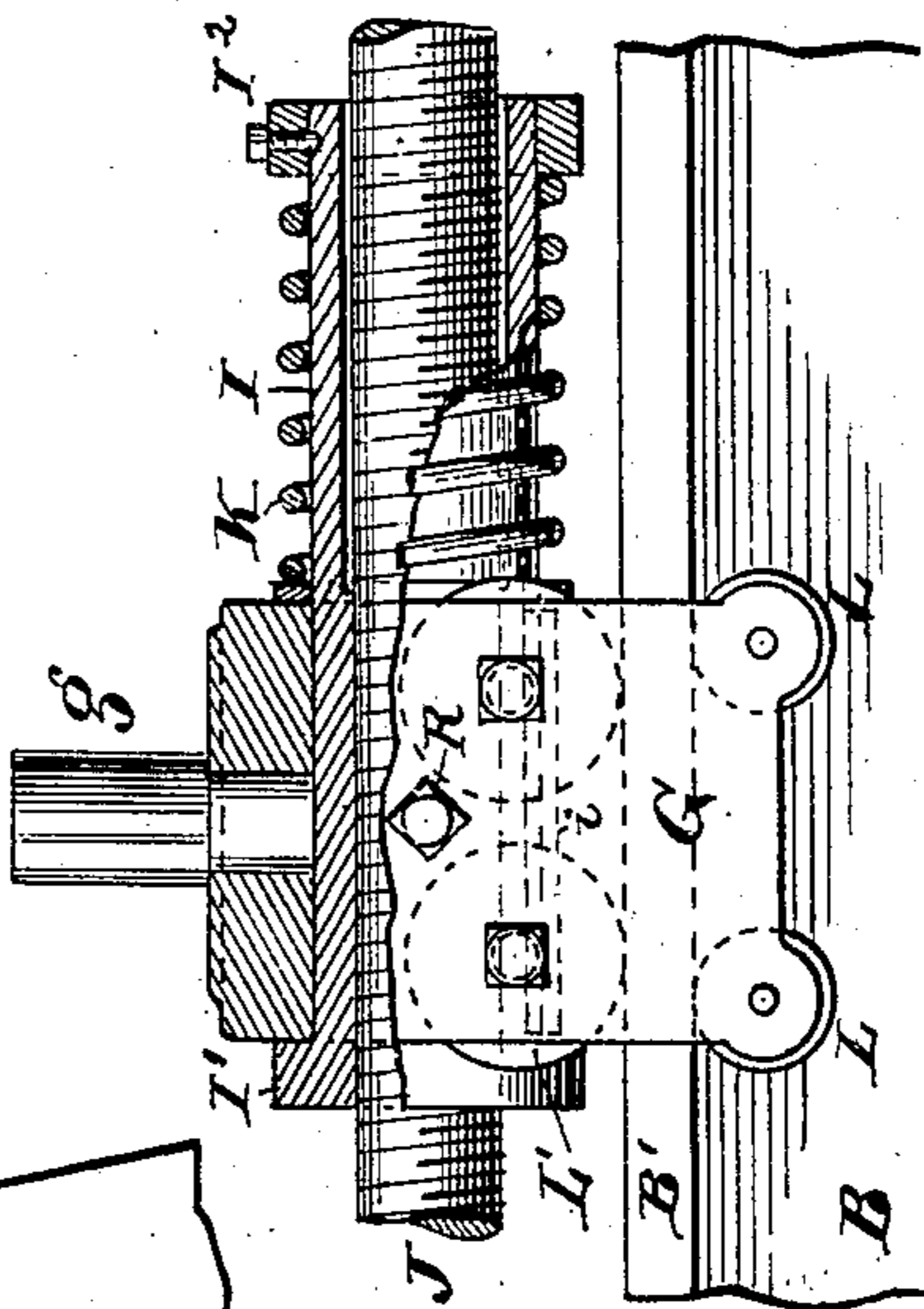


FIG. 4

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R. M. Kelly.
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Inventor
Andrew McLean
By his atty
[Signature]

UNITED STATES PATENT OFFICE.

ANDREW McLEAN, OF PASSAIC, NEW JERSEY.

TENTERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 763,415, dated June 28, 1904.

Application filed July 10, 1903. Serial No. 164,931. (No model.)

To all whom it may concern:

Be it known that I, ANDREW McLEAN, of Passaic, county of Passaic, State of New Jersey, have invented an Improvement in Tentering-Machines, of which the following is a specification.

My invention has reference to tentering-machines; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a tentering-machine of any of the usual types with an auxiliary adjustment for one of the chains of clamps, whereby it is moved laterally under spring action to compensate for variation in the width of the fabric passing through the machine. In this manner ample stretching action is secured and at the same time no undue or destructive stretching is permitted.

In carrying out my invention I provide the longitudinal frames which carry the chains of clamps with the usual devices for supporting them and securing the reciprocating movements and combine therewith lateral adjusting devices for adjusting the frames and chains of clamps to and from each other to suit fabrics of different widths, the said devices being so constructed that one of the chains and its support shall have capacity for lateral adjustment under spring action for automatic movement upon the supports to compensate for places in the length of the fabric which have greater or less width than the normal width.

My invention also comprehends details of construction which, together with the above-mentioned features, will be better understood by reference to the drawings, in which—

Figure 1 is a plan view of a tentering-machine embodying my improvements. Fig. 2 is an enlarged cross-section of same on line 2 2 of Fig. 1. Fig. 3 is a cross-section of same on line 3 3 of Fig. 2, and Fig. 4 is a side elevation of a portion of Fig. 3 with part broken away.

A and A' are the two longitudinal reciprocating chain-carrying frames. These frames are pivoted upon the transverse pivot-frames B, which are respectively pivoted to station-

ary standards at *b*. One of these frames, A', is composed of two parts, the inner one A² being laterally adjustable automatically relatively to the outer frame A³. The frames A and A³ are pivoted at *h* upon carriages H, which are guided upon the pivoted frames B. These frames B are provided with adjusting screw-shafts J, having right and left hand screw-threads, respectively, upon each side of the pivot-points *b*, and said screw-shafts work in the carriages H, so as to move them toward or from each other for relatively adjusting the frames A A'. The adjusting-screws J are adapted to be rotated by hand-wheels J' or by any other means customary in machines of this class. The carriages H fit down upon the frames B and have guides formed in their lower portions to fit upon the flanges of said frames. In this way the weight is largely removed from the screw-shafts.

The automatically-adjustable part A² of the frame A' is pivoted at *g* upon carriages G, which are guided upon the pivoted frames B. These carriages are supported upon guide-wheels L', running upon the upper surfaces of the lateral flanges B' of the frames B, and are kept from being tilted under the tension of the stretched fabric by the employment of additional rollers L, running upon the under face of said flanges, as clearly shown in Figs. 2 and 3. I employ two rollers above and two below the flange upon each side, so as to give great stability and at the same time prevent binding. These rollers, together with the sides of the carriages G, constitute guides for guiding the carriages upon the flanges of the frames B. The carriage G is fitted with a bearing I, having an internal screw-thread adapted to the threaded shaft J, as shown in Figs. 2 and 4. This bearing is held against rotation in the carriage by a key *i* and by set-screw R, the end of which enters a groove in the bearing, and at one end it is provided with a flange I', resting against the carriage, and at the other with a removable collar I², between which and the carriage is arranged a coiled spring K. A collar K' may be arranged between the spring and carriage, if desired. This spring surrounds the bearing or an extension thereof and operates to normally hold

the carriage against the collar I' if not otherwise prevented by the tension of the cloth. When the machine is in operation, the cloth holds the carriage G firmly against the springs K, and hence the frame A² is at all times adjustably sustained, so as to compensate for variations in the width of the fabric. At the same time that this frame A² has this automatic capacity for adjustment it is under proper hand-adjustment control produced by turning the screw J in the bearing I. This hand adjustment keeps the parts A² A³ of the frame A' in proper correlation and adjusts them to and from the other frame A as a unit.

The sleeves H' in the carriages H in normal operation of the machine are held against rotation in the carriages by set-screws r; but when it is required to relatively adjust the carriages H, G, and H upon the screw-shafts J in setting up the machine in the first instance the set-screws r r are loosened, so that the sleeves H' H' may be rotated by hand until the proper adjustment is made. The set-screws are then screwed up tight to hold the sleeves rigid to the carriages. This provision for adjustment is a source of great economy and saving of time in erecting the machine.

Each end of the frames A A' is provided with sprocket-wheels E E', about which are arranged endless chains F, having cloth-clamps f of any of the usual forms. These chains are guided in guides M on the frames, as indicated in Fig. 2. The chains are not shown in full in Fig. 1, as their construction and use is well known to those familiar with machines of this class. The sprocket-wheels E are secured upon vertical shafts and driven by gearing from the horizontal shaft C, which is pivoted at d and given a rotary motion by gearing of suitable construction. This shaft C is also oscillated, as by means of the power connecting-rod D or other well-known means. The oscillation of the shaft C is the means for imparting a reciprocating motion to the frames A A'. It will not be necessary to describe these parts more in detail, as no claim is made to them, and various means for securing this motion are old and well known to those skilled in the art of treating textile fabrics in tentering-machines.

The important feature of my invention lies in the employment of two supports for the chains of clamps having hand adjustment and also automatic adjustment relatively to and from each other, the former to meet the normal requirements of the width of the cloth and the latter to meet the abnormal requirements and prevent both looseness in the fabric and abnormal stretching of the same during the normal operation of the machine when giving a diagonal and lateral stretching to the fabric.

While I have found the construction illus-

trated excellently adapted to the purposes of my invention, I do not confine myself to the details, as these may be modified or varied without departing from the spirit of the invention.

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

1. In a tentering-machine, the combination of two longitudinal reciprocating frames, chains carried by said frames and provided with means for holding the fabrics, adjusting screw-shafts arranged transversely to the frames and adapted to oscillate, a series of carriages supporting one of the frames and positively connected with the screws so as to be adjusted thereby, a series of bearings screwed upon the opposite ends of the screw-shafts and acting as nuts, a second series of carriages supporting the other of the longitudinal frames, spring devices intermediate of the bearings and second series of carriages whereby the two chains and their carrying-frames are spring-pressed away from each other to keep the fabric at all times under tension, and means for reciprocating the frames and driving the chains.

2. In a tentering-machine, the combination of two longitudinal reciprocating frames, chains carried by said frames and provided with means for holding the fabric, adjusting screw-shafts arranged transversely to the frames and adapted to oscillate, a series of carriages supporting one of the frames by pivot connections and positively connected with the screws so as to be adjusted thereby, a series of bearings screwed upon the opposite ends of the screw-shafts and acting as nuts, a second series of carriages supporting the other of the longitudinal frames and sleeved upon the bearings so as to slide longitudinally thereon, spring devices intermediate of the bearings and second series of carriages and surrounding the bearings whereby the two chains and their carrying-frames are spring-pressed away from each other to keep the fabric at all times under tension, and means for reciprocating the frames and driving the chains.

3. In a tentering-machine, the combination of two reciprocating longitudinal frames one of which is formed with an independent movable part, chains carried by the frames and provided with means for holding the selvages of the cloth, transverse screw-shafts carried in bearings pivoted intermediate of the longitudinal frames, carriages pivoted to each of the longitudinal frames and working on the screw-shaft as nuts, bearings working on the screw-shaft as nuts, other carriages adjustable with the bearings in the direction of the screw-shaft and pivoted to the independent movable part of one of the longitudinal frames, and spring devices between the bearings and their

carriages for forcing the movable part of one of the longitudinal frames away from the other longitudinal frame.

4. In a tentering-machine, the combination
5 of two reciprocating longitudinal frames one of which is formed with an independent movable part, chains carried by the frames and provided with means for holding the selvages of the cloth, transverse screw-shafts carried
10 in bearings and extending between the longitudinal frames, carriages pivoted to each of the longitudinal frames and working on the screw-shaft as nuts, bearings working on the screw-shaft as nuts, other carriages adjustable
15 with the bearings in the direction of the screw-shaft and pivoted to the independent movable part of one of the longitudinal frames, spring devices between the bearings and their carriages for forcing the movable part of one of the longitudinal frames away from the other longitudinal frame, pivoted transverse frames
20 carrying the bearings of the screw-shafts and having lateral flanges, and guides carried by the carriages of the bearings arranged to travel over the flanges of the transverse frames and be guided thereby.

5. In a tentering-machine, the combination of two reciprocating longitudinal frames one of which is formed with an independent movable part, chains carried by the frames and provided with means for holding the selvages of the cloth, transverse screw-shafts carried
30 in bearings extending between the longitudinal frames, carriages pivoted to each of the longitudinal frames and working on the screw-shaft as nuts, bearings working on the screw-shaft as nuts, other carriages adjustable with the bearings in the direction of the screw-shaft and pivoted to the independent movable
35 part of one of the longitudinal frames, spring devices between the bearings and their carriages for forcing the movable part of one of the longitudinal frames away from the other longitudinal frame, pivoted transverse frames
40 carrying the bearings of the screw-shafts and having lateral flanges, and guide-wheels carried by the carriages of the bearings arranged

above and below and adapted to travel over the flanges of the transverse frames and be guided thereby.

6. In a tentering-machine, a longitudinal frame for carrying the cloth-stretching chain, a cloth-stretching chain, a carriage pivoted to the longitudinal frame to support it, a transverse frame upon which the carriage is supported and guided, a transverse adjusting screw-shaft, a bearing screwed upon said shaft and acting as a nut thereto said bearing extending through the carriage and held against turning therein, and a spring surrounding the bearing and pressing against the carriage to move it upon the bearing.

7. In a tentering-machine, the combination of two longitudinal reciprocating frames one of which is provided with a laterally-adjustable part, means carried by the frames to hold the cloth, pivoted means for holding the two frames together while reciprocating, and spring devices for automatically moving the laterally-adjustable part of the longitudinal frame relatively thereto for keeping the cloth under tension and compensating for irregularities in the width of the fabric.

8. In a tentering-machine, the combination of two longitudinal reciprocating frames one of which is provided with a laterally-adjustable part, means carried by the frames to hold the cloth, pivoted means for holding the two frames together while reciprocating, spring devices for automatically moving the laterally-adjustable part of the longitudinal frame relatively thereto for keeping the cloth under tension and compensating for irregularities in the width of the fabric, and means under hand control for adjusting the longitudinal frames to or from each other without disturbing the automatic adjustable feature of the laterally-adjustable part.

In testimony of which invention I hereunto set my hand.

ANDREW McLEAN.

Witnesses:

R. M. HUNTER,

R. M. KELLY.