

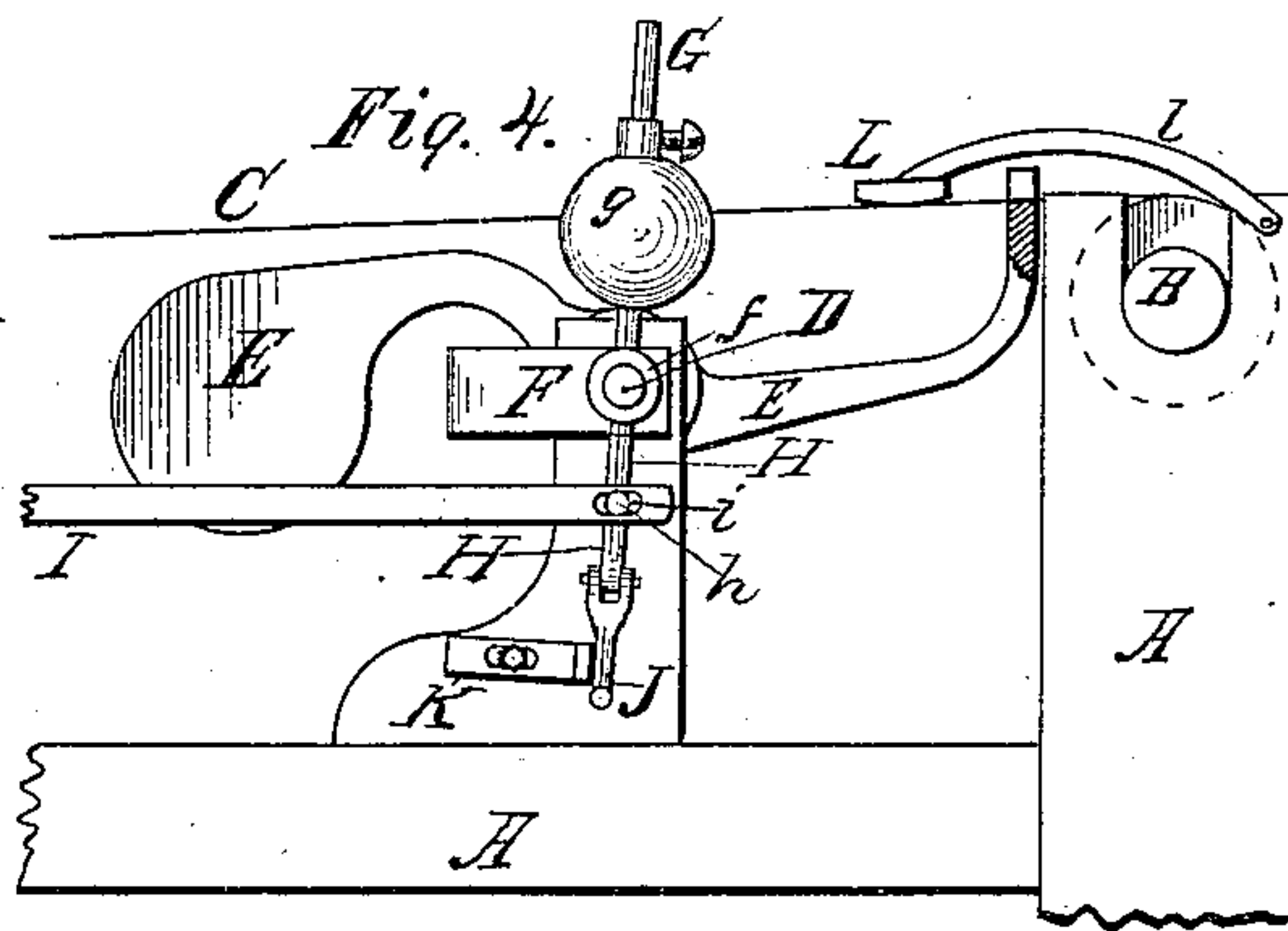
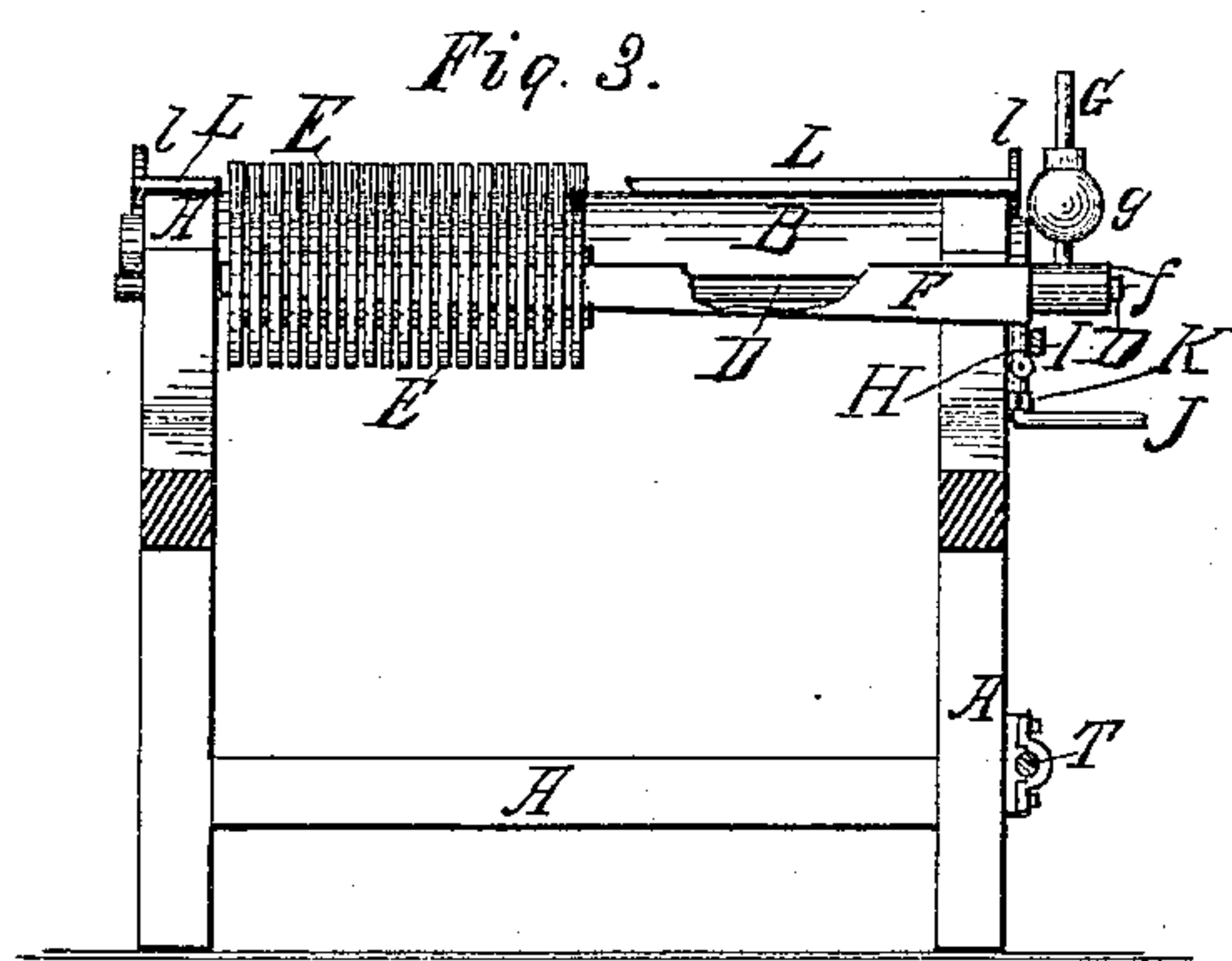
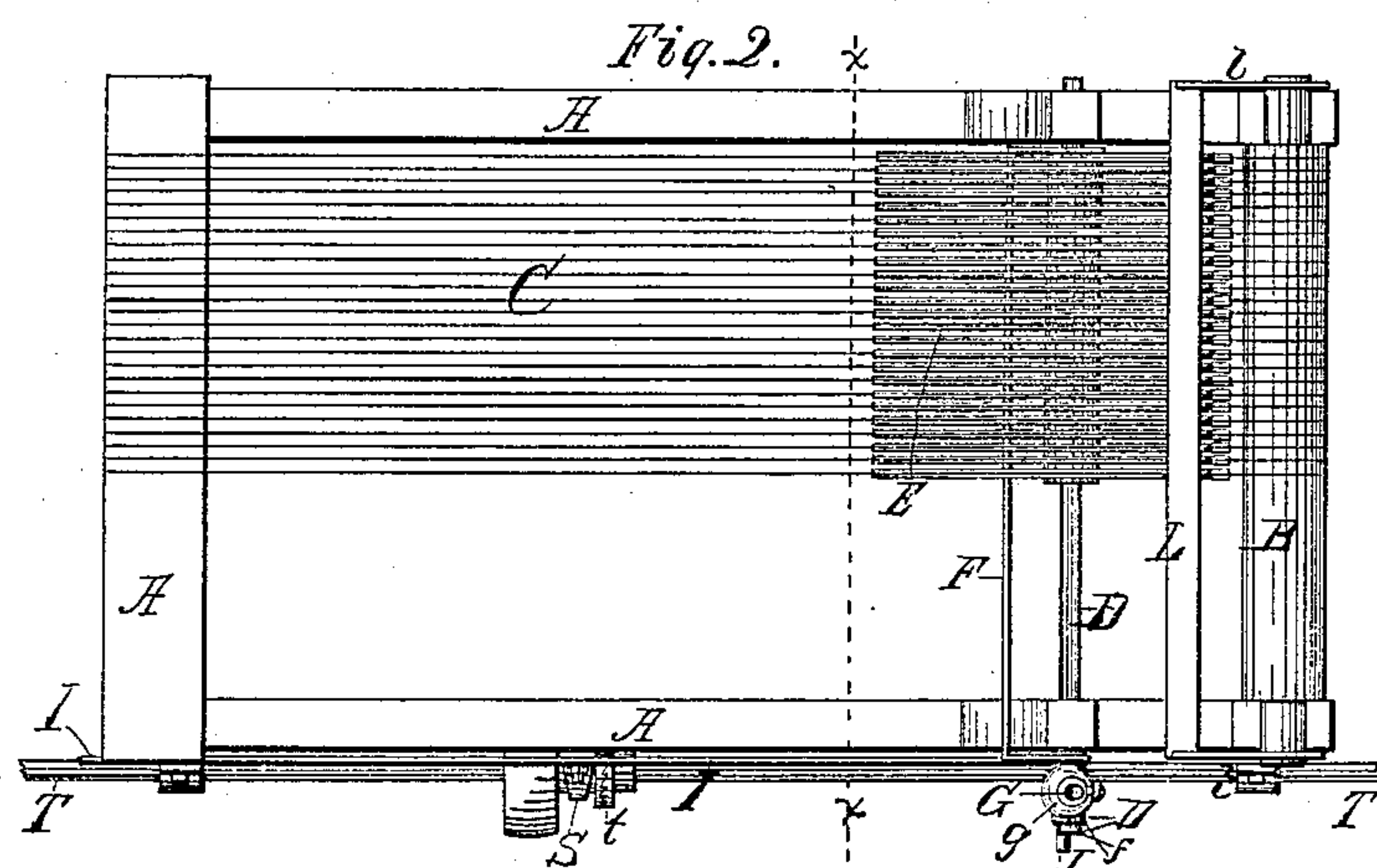
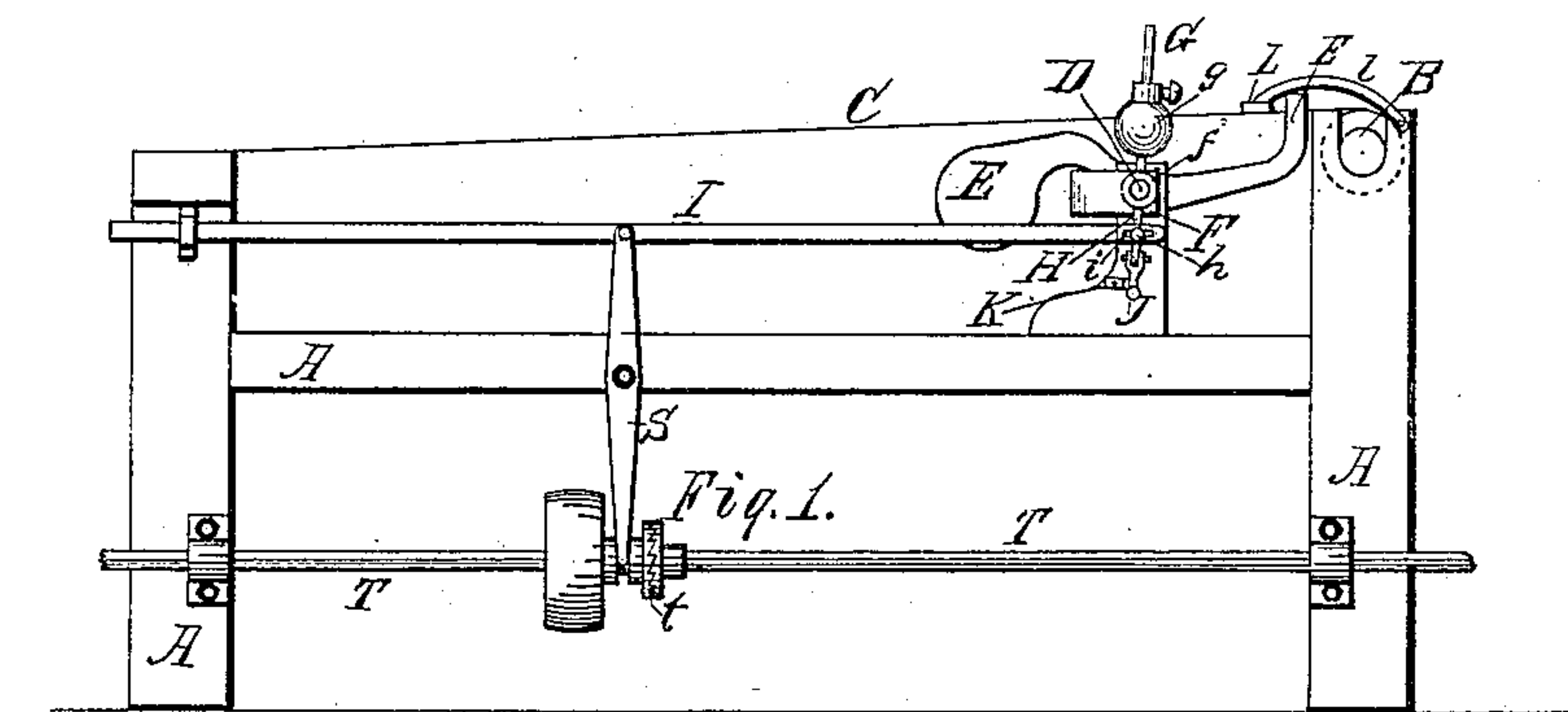
(No Model.)

T. B. RIDER.

WARP STOP MECHANISM FOR LOOMS.

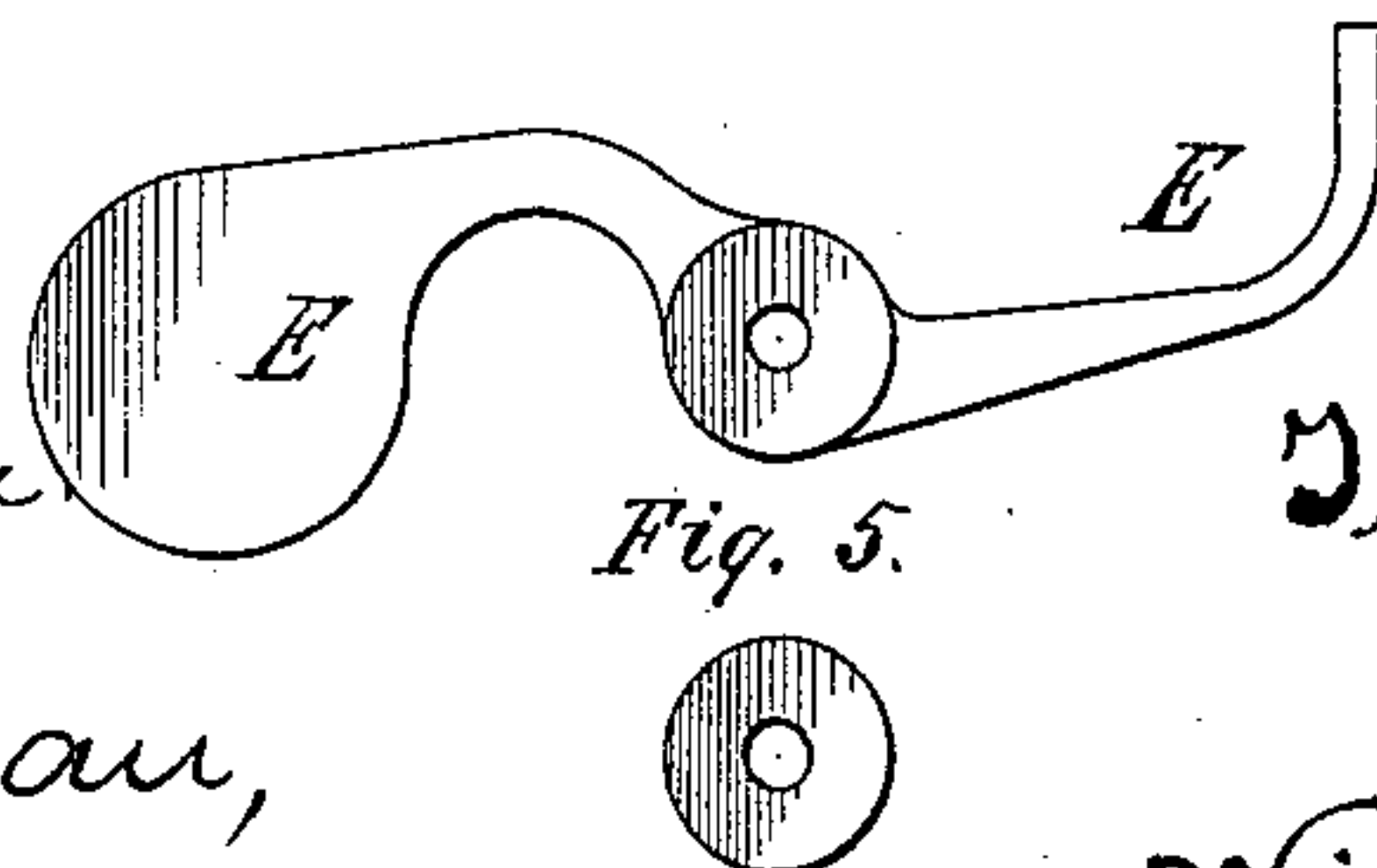
No. 258,605.

Patented May 30, 1882.



Witnesses;

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UNITED STATES PATENT OFFICE.

TIMOTHY B. RIDER, OF FITCH BAY, QUEBEC, CANADA.

WARP-STOP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 258,605, dated May 30, 1882.

Application filed June 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY B. RIDER, a citizen of Canada, residing at Fitch Bay, in the county of Stanstead and Province of Quebec, Canada, have invented certain new and useful Improvements in Warp-Stop Mechanism for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in looms.

In the manufacture of cloth the breaking of one or more of the warp-threads is of common occurrence, requiring the constant attention of an operator to detect such breakages, and, upon detection, to stop the loom by means of the ordinary stop mechanism, so that the thread may be repaired.

Oftentimes, owing to the number of the warp-threads or the inattention of the operator, or where the operator has the care of several looms, one or more of the warp-threads break, and before the break is detected more or less of defective cloth is woven. This defect is partially overcome by stitching threads in the defective portions; but the defect is never entirely cured, on account of which the cloth becomes deteriorated more or less in quality.

The object of my invention is to remedy this evil by automatically operating the stop mechanism of a loom upon the breakage of a warp thread or threads, by which the further working of the loom will be prevented until the operator shall have repaired the break and again set the loom in motion.

To this end my invention consists of the parts substantially as hereinafter described, and set forth in the claims.

Referring to the drawings, Fig. 1 is a side elevation of a portion of a loom, showing my invention applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is a transverse section on the line *x x* of Fig. 2. Fig. 4 is an enlarged detail of part of my improved mechanism; and Fig. 5 is a side elevation of one of the levers *E* and its annulus, showing also one of the washers sometimes employed.

Corresponding parts in the several figures are indicated by similar letters of reference.

In the annexed drawings, *A* marks any suitable frame forming part of a loom, and provided with a roller, *B*, over which pass the warp-threads *C* to the weaving mechanism.

Secured to the frame a suitable distance from the roller *B*, below the warp-threads, is a transverse shaft, *D*, which supports a series of levers, *E*. These levers freely move on the shaft *D*, and are in the present instance preferably made in a bent form, the inner ends or those nearest the roller *B* being bifurcated to receive each a warp-thread therein, and the other ends being weighted, as shown. To preserve these levers a suitable distance apart on the shaft, (the distance being regulated by the space between any two warp-threads,) they each may be provided with an annulus of proper width, and which encircles the shaft; or, if preferred, washers may be placed between the levers to accomplish the same result.

F marks a trip-beam arranged in front of the shaft *D* and below the levers *E*, so balanced that in its normal position its upper edge will be sufficiently below said levers as to permit slight vertical play of the levers, which may be caused by a greater or less tension in the warp-threads. The trip-beam has its ends bent at right angles to the body thereof, through one of which the shaft *D* passes, and to the other is formed a sleeve, *f*, which encircles the shaft. To this sleeve is attached an arm, *G*, which receives a ball-weight, *G*, provided with a set-screw to hold it at any point on the arm. The normal position of the arm, with its adjustable weight, is almost vertical, or slightly to one side of its center of gravity, so that the ball-weight, being adjusted to hold the trip-beam in the position described, will be thrown beyond the center of gravity and fall to operate the stop mechanism upon the breakage of a thread and a consequent falling of one of the weighted levers on the trip-beam. Another purpose of the adjustable ball-weight is to get a greater or less acting force on the stop mechanism of the loom, as is required or deemed advisable.

Depending from the sleeve *f* is an arm, *H*, having a wrist-pin, *h*, which works in the slot *i* of the connecting-rod *I*. The connecting-rod *I* has a bearing in the frame *A*, and receives

one end of a lever, S, pivoted to the frame A. The opposite end of the lever engages with the loose section of the clutch *t*, working on the shaft T and carrying a pulley, as shown.

5 When the sections of the clutch mesh with each other motion is communicated from the shaft T, through the pulley secured to the loose section of the clutch, to the driving mechanism of the loom. Upon the breakage of a thread
10 and a consequent falling of one of the levers E on the trip-beam the rod I is carried backward, which causes the lever S to throw the clutch out of gear to prevent the further operation of the loom mechanism.

15 Hinged to the end of the arm H is a lever, J, which engages with or abuts laterally against a stop, K, to prevent the weighted arm G from falling toward the rear end of the frame. This stop is held to the frame by a bolt
20 passing through a slot therein and entering said frame. By this means the stop can, when desired, be moved laterally, so that by its adjustment the weighted arm G can be brought
25 nearer to or farther from a vertical line through it to get delicacy of adjustment, and be adjusted, also, with relation to the falling weight or force of the levers E. Furthermore, by lifting the lever J out of contact with the adjustable stop K and pushing it forward the sleeve *f*
30 will be partially rotated on its shaft, the trip-beam be raised, and the rear ends of the levers be depressed and disengaged from the warp-threads. This is desirable when threading or repairing broken threads.

35 L marks a bar provided with the side pieces or curved arms, *l*, which are pivoted to the standards that support the roller B. This bar rests on the warp-threads in front of the ends of the levers, the object of which is to lessen
40 the length of thread subject to the upward force of the levers, and thereby diminish the leverage of the levers on said threads, besides permitting the levers to be more heavily weighted to give greater striking force on the
45 trip-beam. The under or contact surface of the bar may be rounded, so as not to interfere with the movement of the threads.

The construction and position of the connecting-rod I are governed by the operation
50 and location of the different stop mechanisms used in connection with looms.

As the levers can be arranged above instead of below the warp-threads, to act on the trip-beam upon the breakage of a warp thread or
55 threads, and thus operate the stop mechanism, as the form of the levers can be materially changed and as the other mechanism can be modified in many particulars or be replaced more or less by other forms of mechanism, without departing from the spirit of my
60

invention, I do not wish to be understood as limiting myself to the parts as shown and described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, 65 is—

1. The combination, with a transverse shaft, of a series of weighted levers provided with slots or eyes to receive the warp-threads, a trip-beam having its ends bent and pivoted on
70 said shaft and arranged to be operated by said levers, and an arm provided with an adjustable weight, substantially as described.

2. The combination, with a transverse shaft, of a series of weighted levers, constructed and
75 arranged as described, to admit of the contact of the threads therewith, a trip-beam arranged relative to said levers, an arm provided with an adjustable weight, a dependent arm, a lever connected to said dependent arm, and a
80 stop for preventing backward tilting of the weighted arm, substantially as described.

3. The combination, with the transverse shaft, of a series of levers, a trip-beam provided with a weighted arm, and an adjustable
85 stop for preventing undue backward motion of said arm, substantially as described.

4. The combination, with the transverse shaft, of a series of levers and a trip-beam provided at one end with a sleeve having the
90 arm provided with an adjustable weight, substantially as described.

5. The combination, with a transverse shaft, of a series of levers, a trip-beam having its ends bent at right angles for connection to
95 said shaft, a sleeve, an upright arm secured to said sleeve, a dependent arm, and shipping or unclutching devices, substantially as described.

6. The combination, with the transverse
100 shaft, of a series of levers, a trip-beam arranged relative to said levers, a sleeve, a weighted arm secured to the latter, a dependent arm provided with a stud, a lever pivoted to the dependent arm, and an adjustable stop,
105 substantially as described.

7. The combination, with the trip-beam having a weighted arm and a dependent arm with its lever, of the adjustable stop, as and for the purpose set forth. 110

8. The combination, with the series of levers, and the trip-beam having a weighted arm and dependent arm with its lever, of the adjustable stop, as and for the purpose set forth.

In testimony whereof I affix my signature in
115 presence of two witnesses.

TIMOTHY B. RIDER.

Witnesses:

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