

No. 791,271.

PATENTED MAY 30, 1905.

I. W. LAMB.

FEEDING MECHANISM FOR STRAIGHT KNITTING MACHINES.

APPLICATION FILED MAY 5, 1903.

4 SHEETS—SHEET 1.

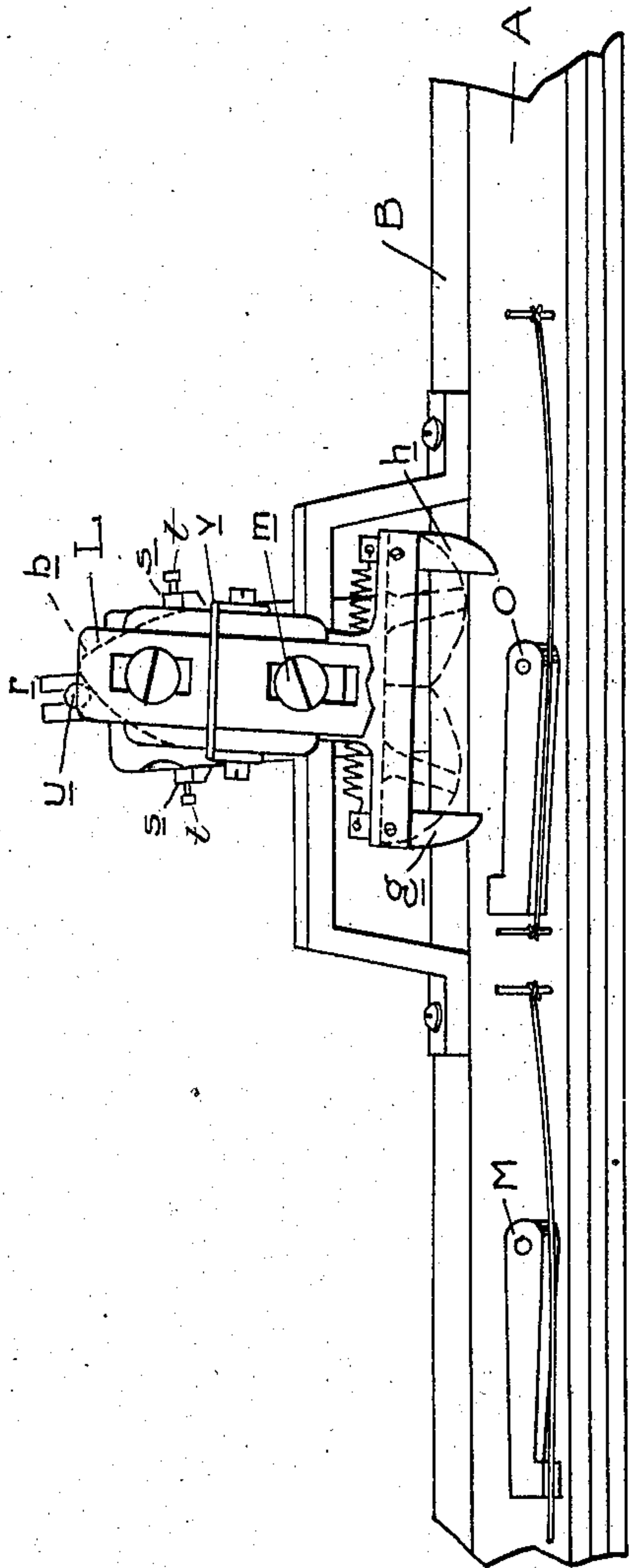


FIG. 10.

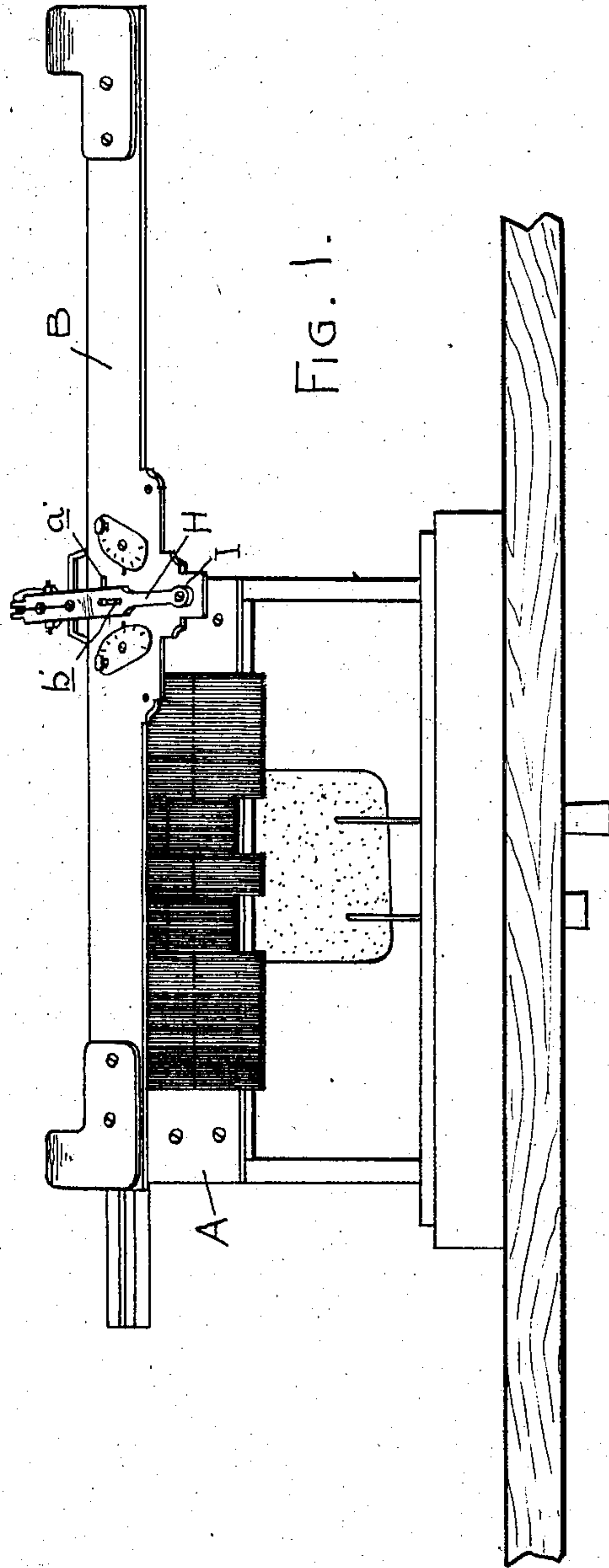


FIG. 1.

WITNESSES

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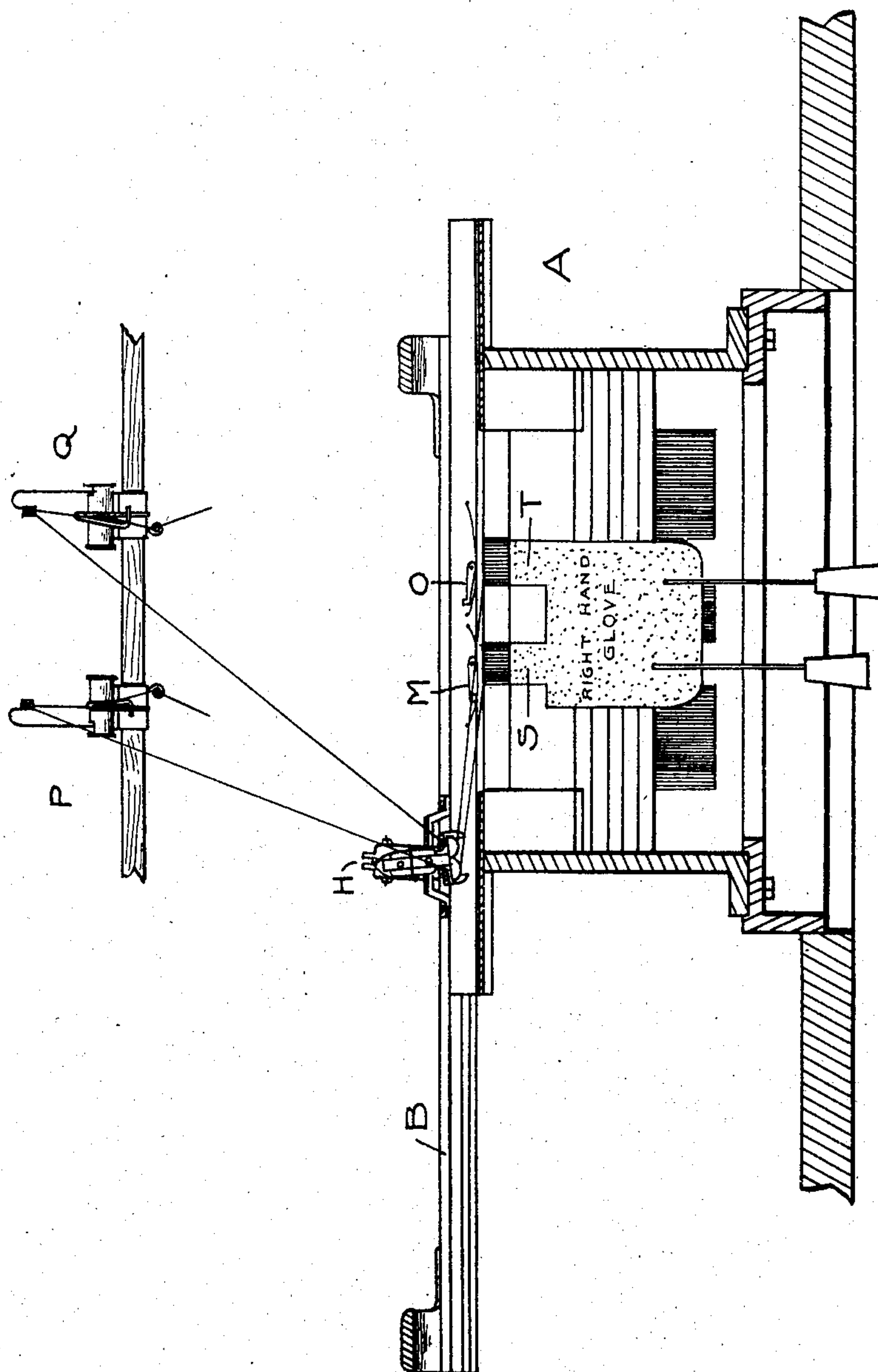


FIG. 2.

WITNESSES

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4 SHEETS—SHEET 3.

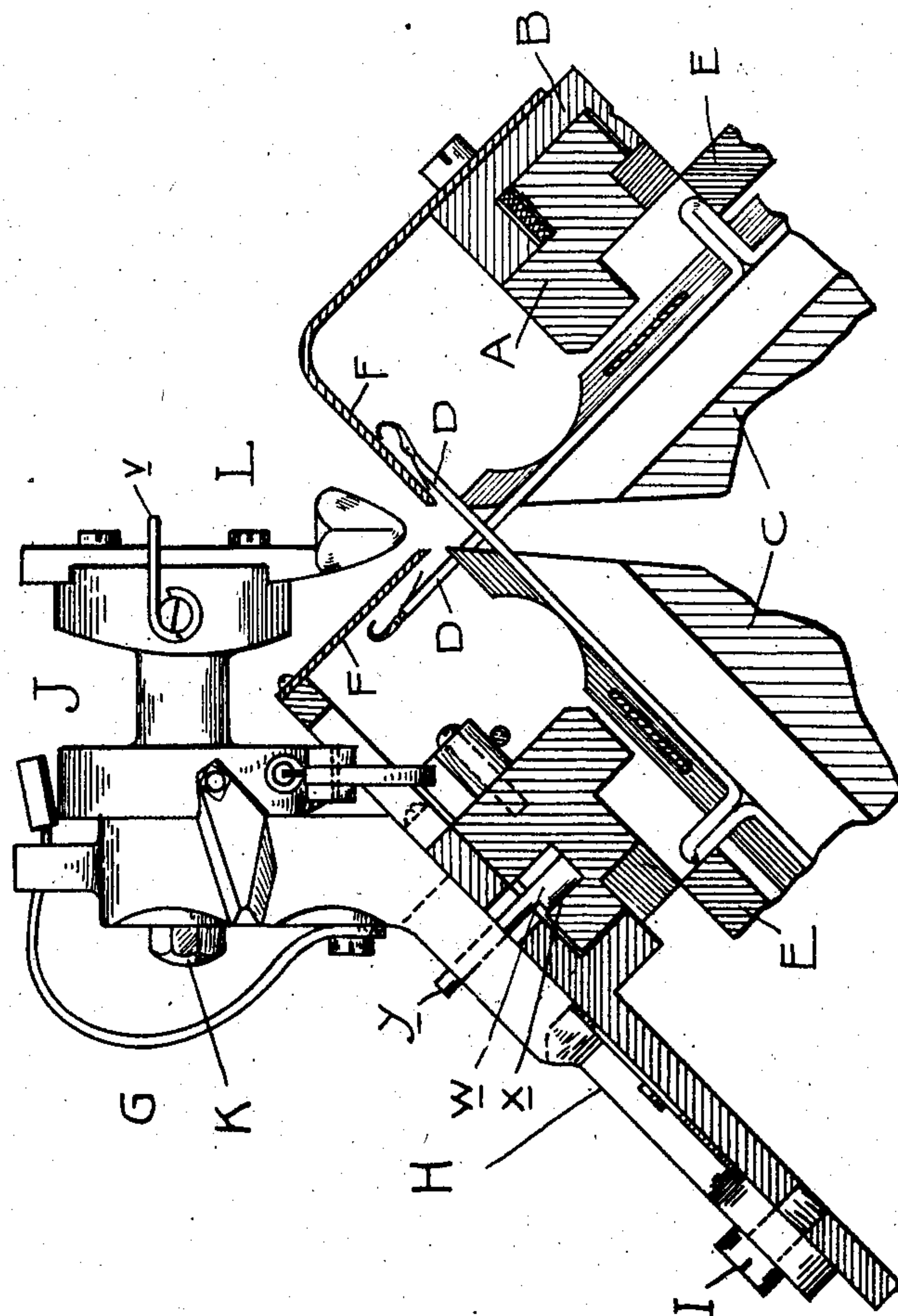


FIG. 3.

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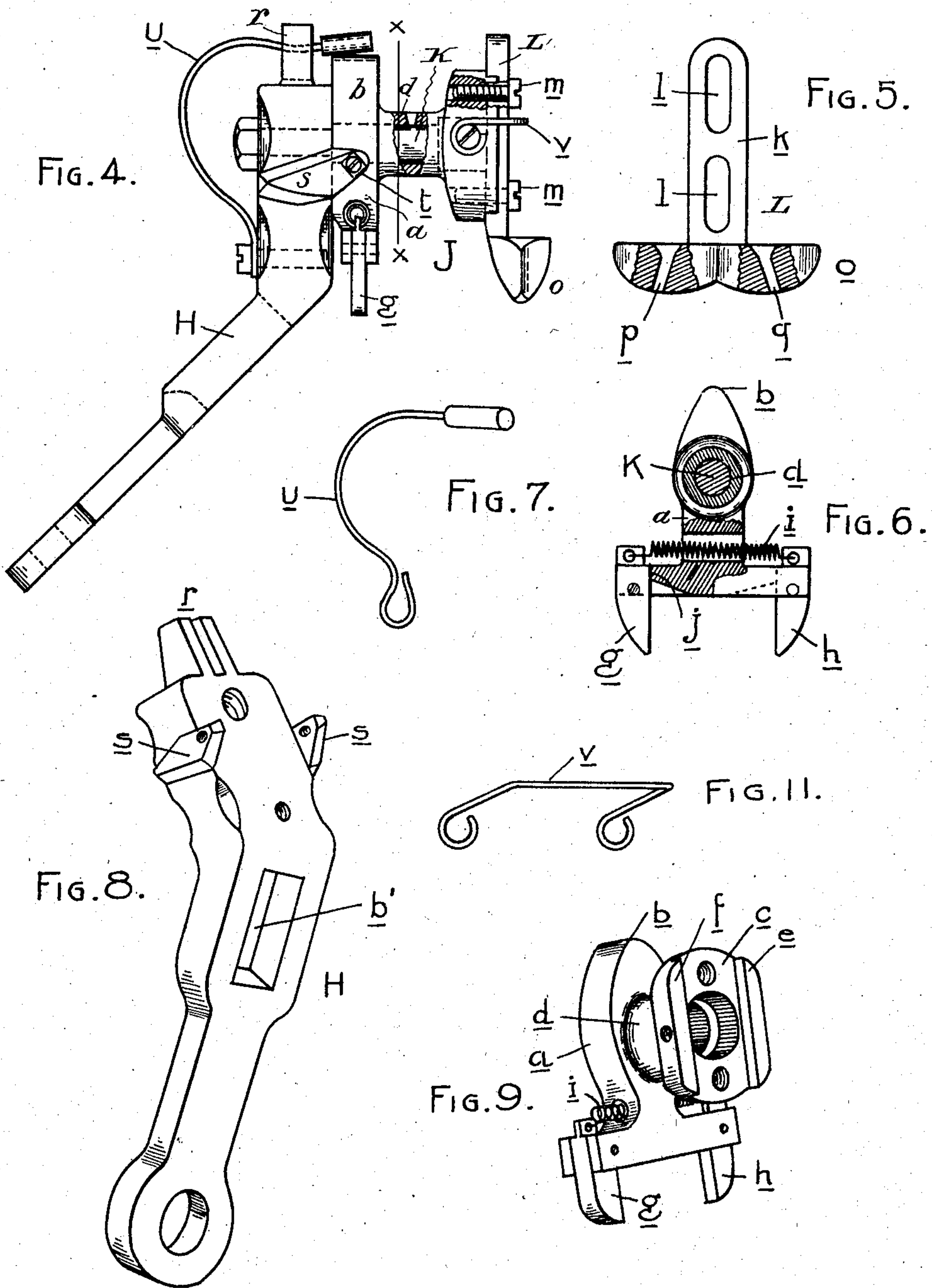
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FEEDING MECHANISM FOR STRAIGHT KNITTING MACHINES.

APPLICATION FILED MAY 6, 1903.

4 SHEETS—SHEET 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR STRAIGHT-KNITTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 791,271, dated May 30, 1905.

Application filed May 5, 1903. Serial No. 155,724.

To all whom it may concern:

Be it known that I, ISAAC W. LAMB, a citizen of the United States, residing at Perry, in the county of Shiawassee and State of Michigan, have invented certain new and useful Improvements in Feeding Mechanism for Straight-Knitting Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates generally to knitting-machines, and particularly to a yarn or thread carrier therefor so constructed that several strands of the yarn or thread may be presented separately to the needles in a manner to produce a plurality of independent fabric sections—as, for instance, the finger-sections of a glove—in the period of time heretofore required in knitting a single section.

The invention consists, essentially, in the novel and peculiar construction of the carrier, in the arrangement and combination of its various parts, and in certain other details of construction, as will be hereinafter described.

In the drawings illustrating my invention, Figure 1 is a rear view in elevation of a knitting-machine, showing my improved carrier applied thereto. Fig. 2 is a longitudinal section through the machine-frame and carriage, illustrating the carrier in front elevation. Fig. 3 is a cross-section through the carriage and frame, showing the inner portion of the needle-plates and the carrier in elevation. Fig. 4 is a detached view of the carrier. Fig. 5 is a detached sectional view of the yarn or thread guide. Fig. 6 is a section taken on line *xx* of Fig. 4. Fig. 7 is a detached perspective view of the locking or retaining device for the guide. Fig. 8 is a perspective view of the carrier-arm. Fig. 9 is a similar view of the guide-block. Fig. 10 is an enlarged detailed view of a portion of the machine, and Fig. 11 is a perspective of yarn-guard.

While my invention is capable of being used in connection with many types of knitting-machines, I have shown the carrier in this instance, for the purpose of illustrating its operation, as applied to the style of machine shown and described in United States Letters Patent

No. 611,130, issued to me upon September 20, 1898. As the construction of the machine and its manner of operation have been fully set forth in the patent referred to, merely a brief reference to its parts will be required in the present case.

In the drawings previously referred to reference-letter A represents the frame of the machine, usually termed the "gib-frame."

B is the carriage, mounted upon and adapted to be reciprocated upon the frame by suitable drive mechanism. (Not shown.)

C is the needle-bed frame; D, the needles, arranged in two series upon opposite sides of the bed in the usual manner; E, the operating-cam for the needles, and F the latch-openers.

G represents my improved yarn or thread carrier, comprising, essentially, in construction a supporting-arm H, pivoted at its lower end to the carriage, as at I, a guide carrier or block J, pivoted to the upper end of the supporting-arm for rocking movement by a bolt K, and the guides proper, L. The rocking member or guide-block as referred to consists of the member *a*, having an angular or pointed upper section or top *b*, a plate-section *c*, spaced from the portion *a* by tubular member *d*, and guides *e* and *f*, between which the guide L is arranged for vertical adjustment. Depending from the member *a* of the guide-carrier are the pivoted dogs *g* and *h*, connected at their upper ends by a coil-spring *i* and held normally in a vertical depending position by the shoulders *j*. The guide proper, which I preferably employ for the carrier, consists of a vertical section *k*, slotted, as at *l*, to receive the screws or bolts *m*, and a head-section *o*, in which are formed two guideways or openings *p* and *q*, oppositely inclined relative to one another.

The supporting-arm H carries at its upper end a guide *r*, consisting, as shown, of two spaced lugs, and below the lugs, on opposite sides of the arm, are formed the shoulders *s*.

t represents set-screws in the shoulders adapted to limit the rocking movement of the guide.

u represents a spring-lock pivoted to the

upper portion of the carrier-arm and adapted to engage at its free end upon opposite sides of the rocking member of the carrier to hold or retain the latter temporarily at the extremities of its rocking movement.

v is a guard for the yarn or thread formed of a yoke-shaped piece of wire connected at its ends to the guide-block J.

The yarn or thread carrier described is adapted to oscillate about the pivot I in the manner shown and described in the patent previously referred to. A friction-spring w is arranged and adapted to travel within a slot or groove x , formed in the gib-frame, and carries a pin y , which extends through slots or openings a' and b' in the carriage and carrier-arm, respectively. Upon the reciprocation of the carriage the spring-pressed pin is caused to move or travel in its groove and oscillates the carrier-arm in the desired manner.

Any suitable mechanism may be employed to rock the guide upon the carrier-arm. In this instance I have shown the means in the form of pivoted dogs M and O upon the gib-frame, adapted, as the carriage reciprocates, to engage the dogs g and h upon the rocking guide-block, thereby causing the latter to swing or turn into the desired position.

In Fig. 2 the machine is represented as knitting a right-hand glove, and when operated in this manner one of the dogs, as O, is used, the other being thrown over out of position, as indicated in full lines in the figure referred to. When knitting a left-hand glove, the dog O is thrown out of its operating position and the left-hand dog M employed. While the body or hand portion of the glove is being formed there is no necessity of rocking the guide, as only one strand of yarn is used. Consequently the dogs M and O are both folded into inoperative positions, as shown.

The parts of the machine having thus been described and the particular construction of the yarn or thread carrier set forth, the operation of the latter is as follows: It being assumed that the hand portion or blank of the glove has been formed and that the finger-sections are being knitted, the strands of yarn pass from suitable take-up devices P and Q to the rocking guide-block and extending through the guideways p and q therein lead, respectively, to the finger-sections S and T upon the fabric blank. The parts being in the position shown in Fig. 2, the carrier and rocking guide upon the travel of the carriage move from the left to the right of the machine in the relative positions indicated in the full lines until the dog g engages the stop or dog O, located at a point intermediate the fabric sections. During this movement of the carrier the guideway p is in a position to lay the yarn on the needles which are producing the finger-sections S, and the complementary guide q is elevated sufficiently to hold its yarn

clear from said needles. As the carriage continues to travel from left to right the yarn-guide is rocked by the dog O into the position indicated in Fig. 10, the guideway q being thrown into position to lay its yarn upon the needles so as to knit a course of stitches upon the finger-section T. As the carriage completes its travel and returns again for a second reciprocation the guide is again rocked through the agency of the dog O, throwing the parts into the position indicated in the full lines, previously referred to, in Fig. 2. In knitting a left-hand glove the operation above set forth is repeated, with the exception that the dog M is used to rock the yarn-guide in place of the dog O.

It will be apparent from the foregoing description that by rocking the guides in the manner set forth they are alternately presented to the needles, and while one of the strands of yarn or thread is engaged by the needles the other is elevated sufficiently to clear them, thus permitting the finger-sections, in case a glove is being knitted, to be independently and simultaneously formed.

While I have shown a particular construction of the yarn or thread carrier and also a preferable means for retaining the rocking guide at different positions in its movement, I do not wish to be limited to the same, as the mechanism described can be varied materially in its construction without departing from the spirit of my invention. Furthermore, the positive locking means for the rocking guide may, if desired, be entirely dispensed with and the desired angular relation of the guides relative to the supporting-arm be maintained by friction or any convenient means other than those described.

What I claim as my invention is—

1. In a knitting-machine, a yarn or thread carrier comprising an oscillating supporting-arm, a member pivoted thereto for relative rocking movement, and a plurality of guides secured to said member and movable therewith.

2. In a knitting-machine, a yarn or thread carrier, an oscillating supporting-arm, a member pivoted thereto for relative rocking movement, and a plurality of guides having a common extension adjustably connected to the pivoted member, and adapted to rock in unison therewith.

3. A knitting-machine, having a yarn or thread carrier consisting of a support, and a member pivoted thereto for rocking movement, a plurality of guides for the thread or yarn adjustably connected to said pivoted member for relative rocking movement, through the medium of an upward extension common to the guides.

4. A knitting-machine having a yarn or thread carrier consisting of a supporting-arm adapted to be oscillated during the operation of the machine, a plurality of guides for the

thread or yarn having an upward extension pivoted to the supporting-arm and adapted to be periodically rocked relatively thereto, and means engaging the upper end of the extension for temporarily retaining the guides at the extremities of their rocking movement.

5. In a knitting-machine, the combination with the reciprocating carriage, of a supporting-arm mounted thereon for oscillating movement, a rocking guide-block upon the arm having two oppositely-inclined guideways therein, and means controlled by the carriage for periodically oscillating the arm and rocking the guides.

6. In a knitting-machine, the combination with a reciprocating carriage, of a supporting-arm mounted thereon for oscillating movement, a rocking guide-block adjustably connected thereto, said guide-block having two oppositely-inclined guideways therein, and means for oscillating the arm and rocking the guides.

7. In a knitting-machine, the combination

with a reciprocating carriage, of a movable supporting-arm mounted thereon, a rocking 25 guide-block having oppositely-inclined guideways thereon, and an extension connected to said supporting-arm, and means operable by the movement of the carriage for imparting movement to the guides. 30

8. In a knitting-machine, the combination with a reciprocating carriage, of a supporting-arm mounted thereon for oscillating movement, a rocking guide-block having at its 35 lower end oppositely-inclined guideways, and at its upper end, intermediate said guideways an adjustable connection with said supporting-arm, and means controlled by the carriage for periodically oscillating the arm and rocking the guides. 40

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

ISAAC W. LAMB.

Witnesses:

H. B. LEMON,

A. U. MACQUEEN.