

W. J. STEERE.
 TRIMMER FOR LOOPERS.
 APPLICATION FILED APR. 30, 1908.

916,799.

Patented Mar. 30, 1909.
 6 SHEETS—SHEET 1.

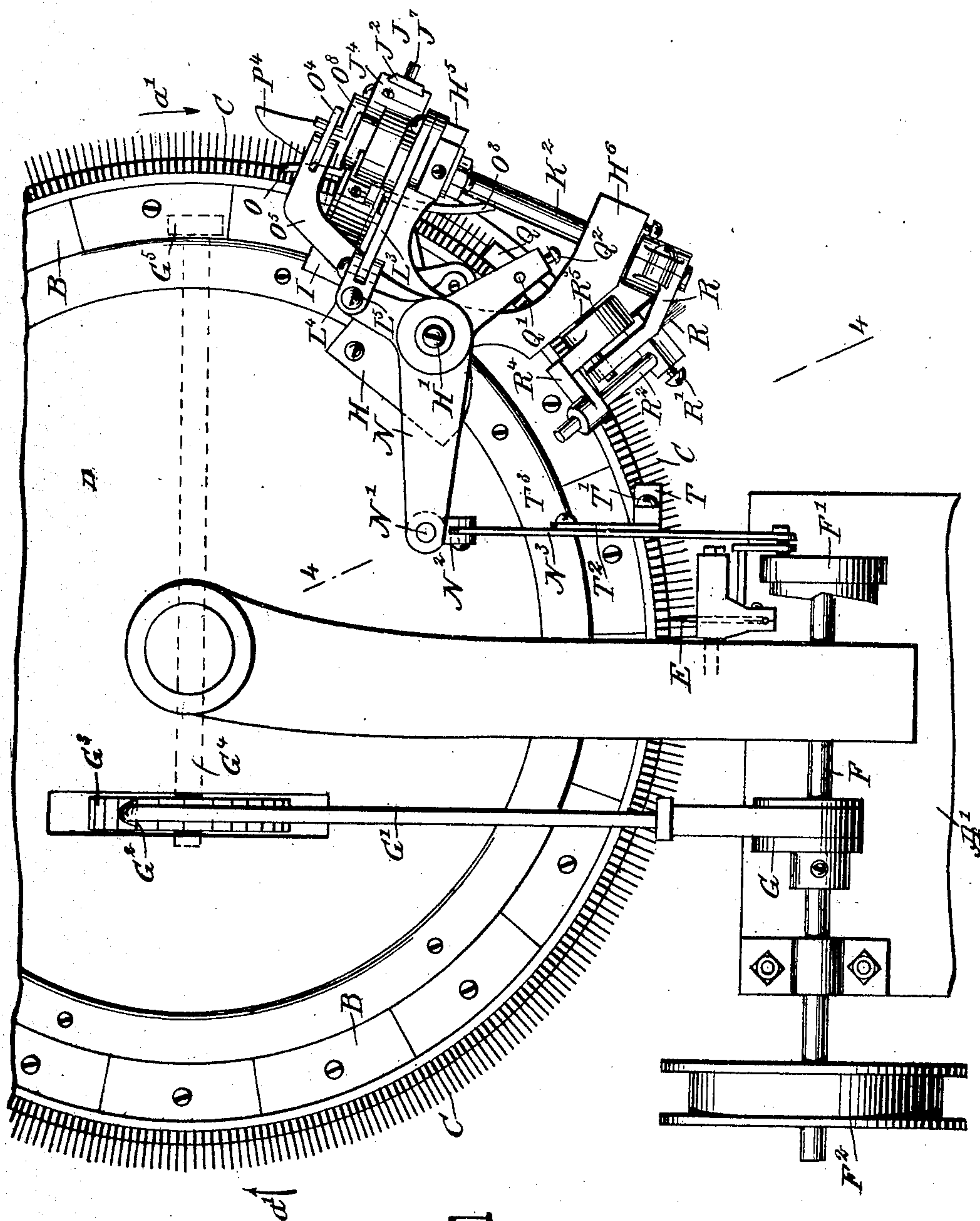


Fig. 1

WITNESSES

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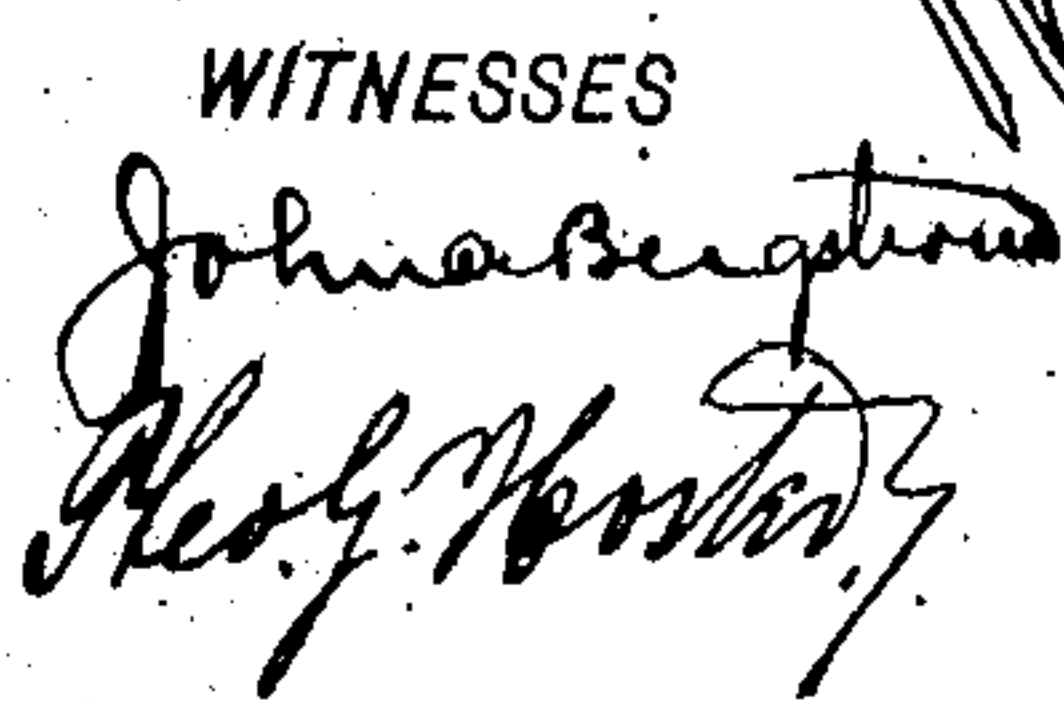
BY *Mumford*

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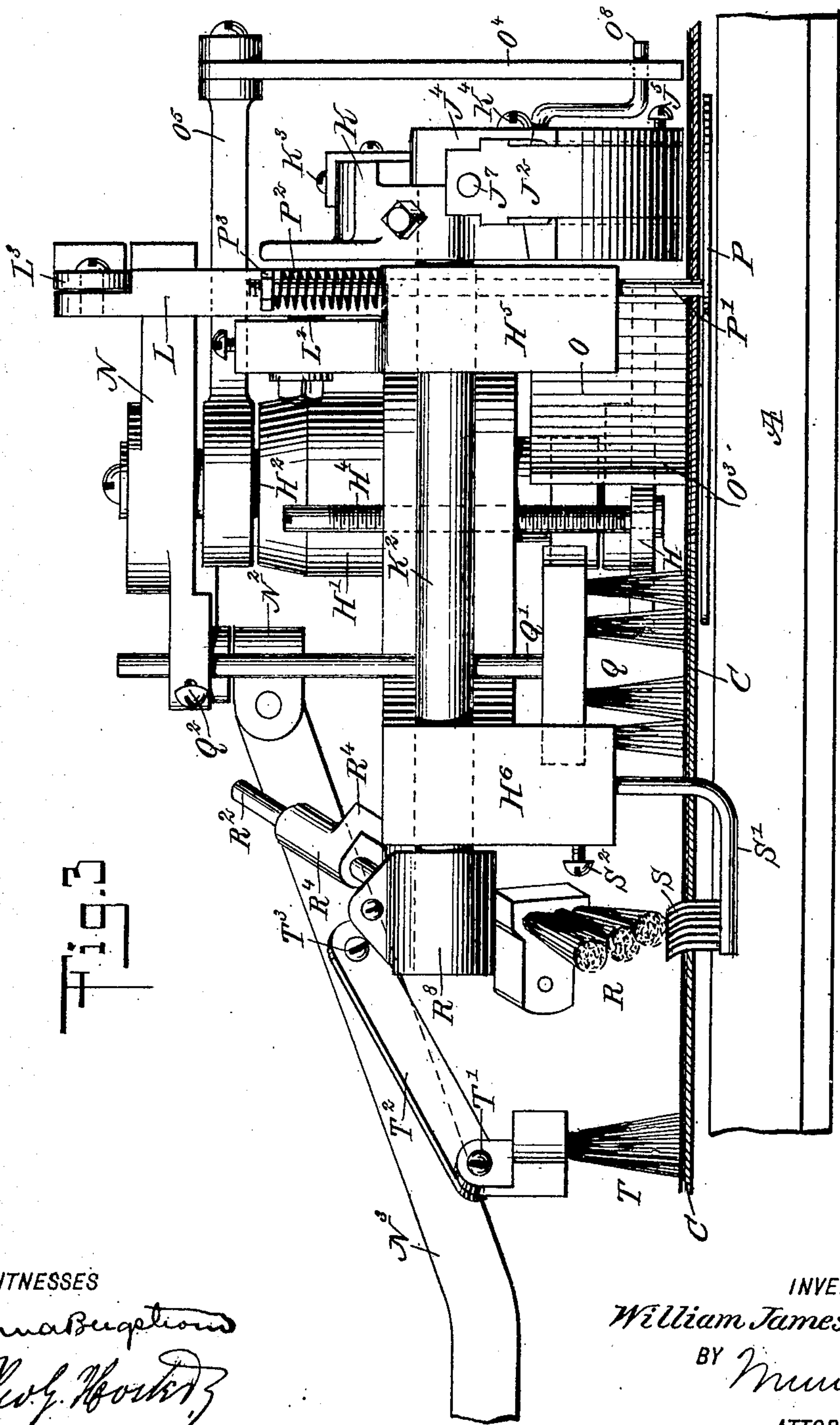


Fig. 3

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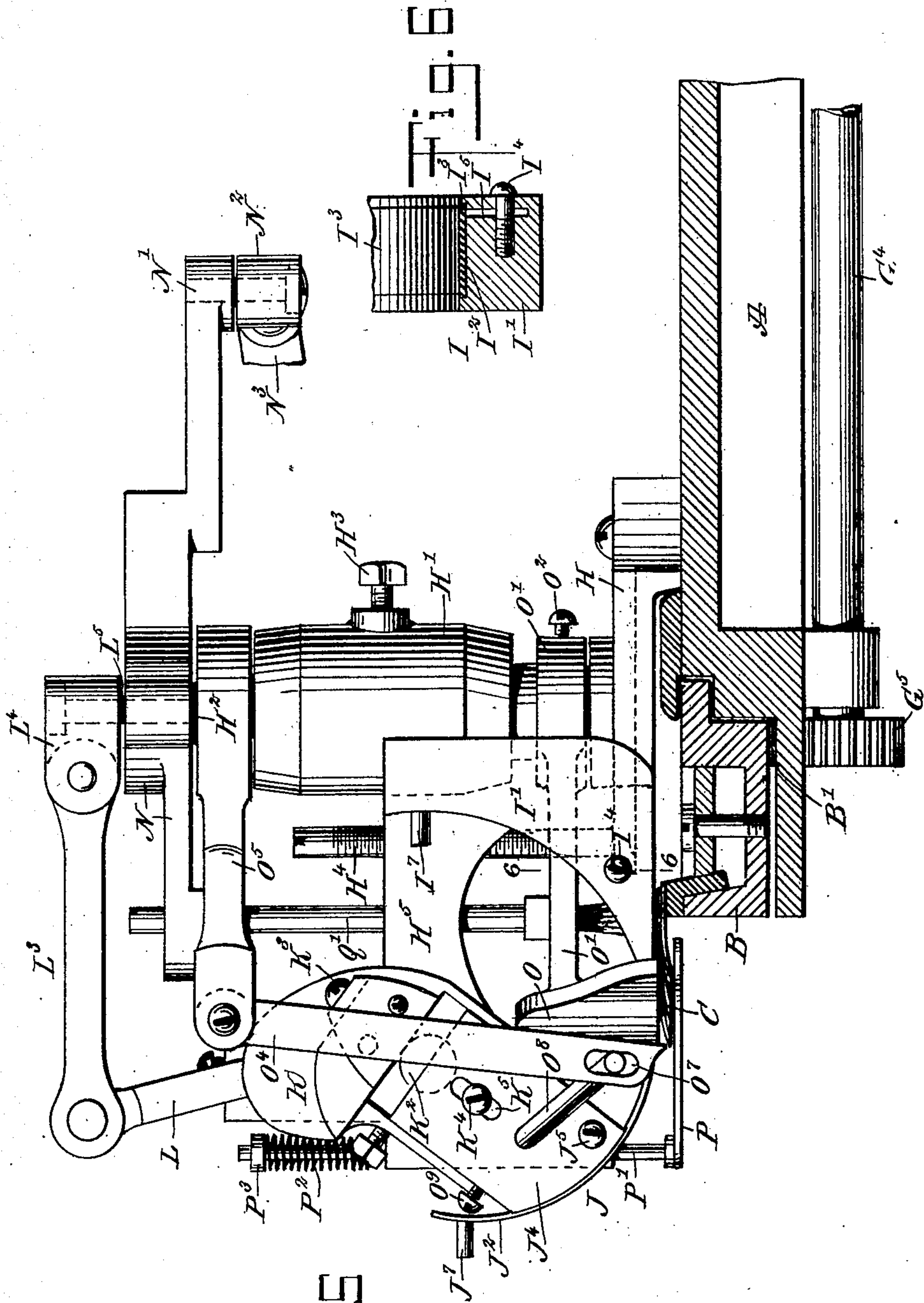
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8 SHEETS--SHEET 5.

916,799.



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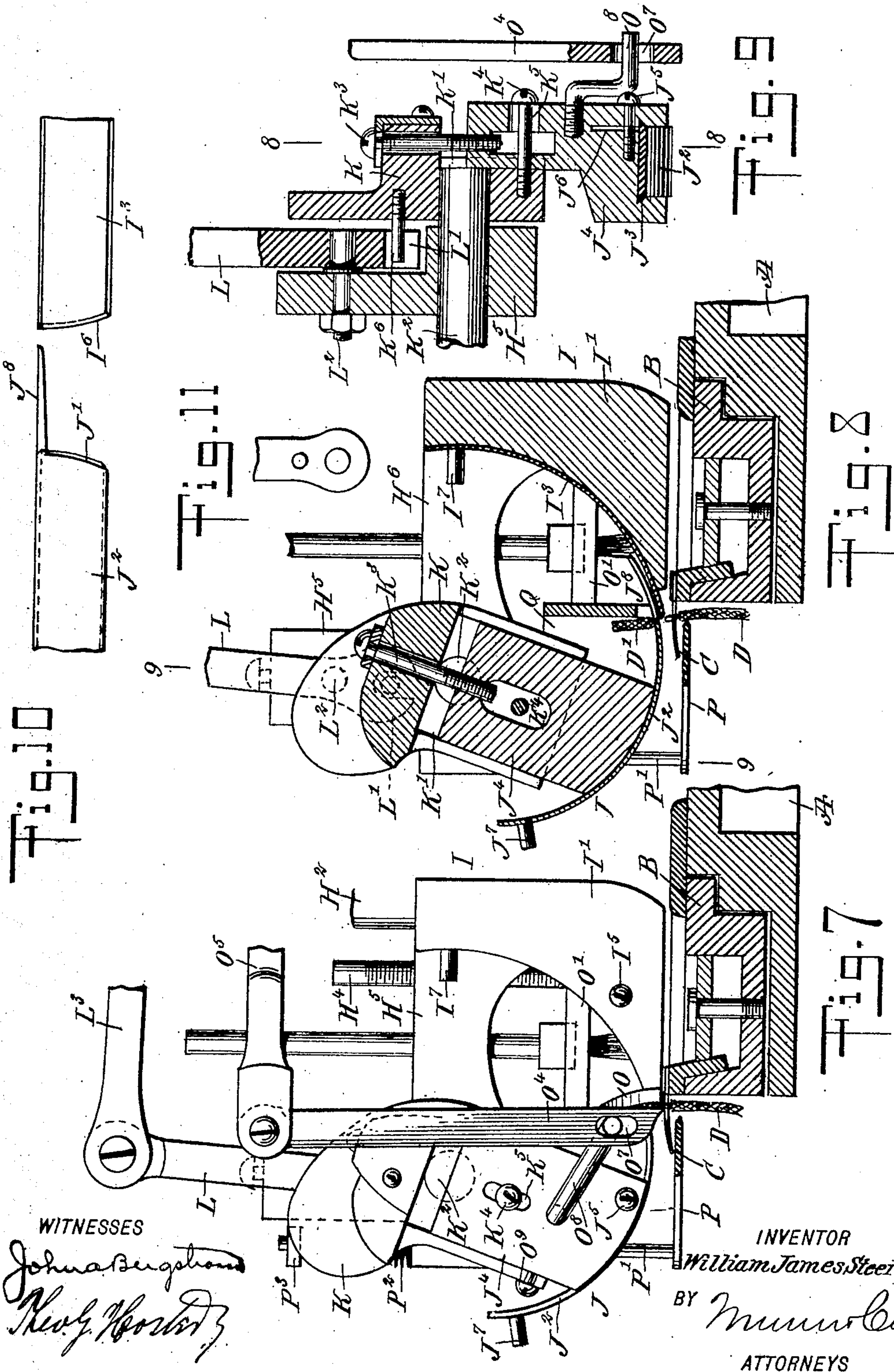
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6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

WILLIAM JAMES STEERE, OF ROCKWOOD, TENNESSEE, ASSIGNOR OF ONE-HALF TO JAMES A. HUFF, OF ROCKWOOD, TENNESSEE.

TRIMMER FOR LOOPERS.

No. 916,799.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed April 30, 1908. Serial No. 430,066.

To all whom it may concern:

Be it known that I, WILLIAM JAMES STEERE, a citizen of the United States, and a resident of Rockwood, in the county of Roane and State of Tennessee, have invented a new and Improved Trimmer for Loopers, of which the following is a full, clear, and exact description.

The invention relates to loopers employed for joining two edges of a knit fabric, mainly for closing the gap or opening left in the toe portion of a seamless stocking.

The object of the invention is to provide a new and improved trimmer forming a permanent attachment for a looper and arranged to accurately cut off the surplus material above the loops held on the looper points, to direct the surplus material from the machine, and to remove all lint or other extraneous matter from the seam of the knit fabric.

The invention consists of novel features and parts and combinations of the same, which will be more fully described herein-after and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improvement applied to a looper having an outside reciprocating sewing needle; Fig. 2 is an enlarged plan view of the same; Fig. 3 is a front elevation of the same; Fig. 4 is a transverse section of the same on the line 4—4 of Fig. 2; Fig. 5 is a like view of the same on the line 5—5 of Fig. 2; Fig. 6 is a sectional elevation of the stationary shearing member of the shearing device for cutting off the surplus material, the section being on the line 6—6 of Fig. 5; Fig. 7 is a cross section of the improvement showing the parts in a different position from the one illustrated in Fig. 5; Fig. 8 is a cross section of the improvement showing the movable member of the shearing device in position after cutting off the surplus material, the section being on the line 8—8 of Fig. 9; Fig. 9 is a sectional side elevation of the same on the line 9—9 of Fig. 8; Fig. 10 is a plan view of the fixed and movable blades of the shearing device; and Fig. 11 is

a face view of a modified form of the actuating lever for the oscillating shearing blade in case the trimmer is applied to a looper having an inside reciprocating sewing needle.

On the bed plate A of the looper is mounted to turn intermittently in the direction of the arrow *a'*, the point ring B carrying the points C on which the seamless hose or other fabric material is looped by the operator having hold of the upper or surplus portion D' of the fabric D. The reciprocating sewing needle E (see Fig. 1) operates in conjunction with the points C in the usual manner, to sew the fabric edges looped on the points C together, so that further description of the operation of the looper and its sewing needle E is not deemed necessary, it being sufficient to state that the needle is actuated from a crank disk F' secured on a main shaft F journaled in suitable bearings arranged on a bracket A' formed on or attached to the bed plate A. On the shaft F is secured a pulley F² connected by a belt with other machinery for imparting a continuous rotary motion to the shaft F, to reciprocate the needle E, the shaft F being also provided with an eccentric G having its eccentric rod G' carrying a pawl G² engaging a ratchet wheel G³ secured on a shaft G⁴ journaled in suitable bearings arranged on the under side of the bed plate A. On the shaft G⁴ is secured a gear wheel G⁵ in mesh with a gear wheel B' secured or formed on the under side of the ring B, as indicated in Fig. 5. Thus when the main shaft F is rotated the eccentric G, its rod G' and the pawl G² impart an intermittent turning motion to the ratchet wheel G³, the shaft G⁴, the gear wheel G⁵ and the ring B.

The parts so far described are common in the usual loopers, and the trimmer for trimming the surplus material D' off the fabric D is mounted on the bed plate A and is actuated from the crank disk F' of the main shaft F, so that the trimmer operates in unison with the intermittent motion given to the point ring B.

The stand H of the trimmer is secured to the bed plate A, and on the said stand is secured a fixed member I of a shearing device having a movable member J operating in conjunction with the said fixed member I, to cut off the surplus material D' immediately

above the loops engaging the points C (see Figs. 7 and 8).

The detail construction of the shearing device is as follows: The support I' of the fixed member I is preferably formed on a bracket H' held adjustably on a stud H² rising from the stand H, the bracket H' being secured in place on the stud H² by a set screw H³, and when the latter is loosened, the bracket H' can be raised or lowered by the use of a screw rod H⁴ screwing in the bracket H' and turning at its lower end in the stand H. The support I' is provided with a dovetail groove I² (see Fig. 6), into which fits the correspondingly shaped blade I³ clamped in position in the groove I² by the use of a screw I⁴ extending through a split I⁵ in the support I', the split leading to the groove I² near one side thereof, as plainly indicated in Fig. 6. Now on loosening the screw I⁴ the blade I³ is unclamped to allow of shifting the same in the groove I² until the forward beveled cutting edge I⁶ is in the proper position, the blade being provided near its upper end with a suitable handle I⁷ for conveniently shifting the unclamped blade I³ into the desired position. When this has been done the screw I⁴ is screwed up to clamp the blade I³ securely in place.

The beveled cutting edge I⁶ of the blade I³ operates in conjunction with a similar beveled cutting edge J' of a blade J² forming part of the movable member J of the shearing device. This blade J² is segmental and fits a dovetail groove J³ held in a support J⁴ provided with a screw J⁵ extending through a split J⁶ formed in the said support J⁴, to allow of clamping and unclamping the blade J² whenever it is desired to adjust the same, to bring the cutting edge J' in proper relation to the cutting edge I⁶. The blade J² is provided with a handle J⁷ to allow of conveniently shifting the blade J² in its groove J³ at the time the blade J² is unclamped, and when the blade J² has been shifted to the desired position, the screw J⁵ is screwed up, to lock the blade J² in place. A guard J⁸ projects from one side of the cutting edge J' onto the blade I³ (see Fig. 8), to prevent the blade J² from being moved downward too far and thus prevent the cutting edge J' from striking the cutting edge I⁶.

The member J of the shearing device has an oscillating motion derived from the crank disk F' in the following manner: The support J⁴ is mounted to slide in a guideway K' formed on a rock arm K secured on a rock shaft K² journaled in suitable bearings arranged on arms H⁵, H⁶, forming integral parts of the bracket H', and the upper end of the support J⁴ is engaged by a screw rod K³ screwing in the rock arm K, so as to adjust the support J⁴ in the guideway K', to bring the blade J² in proper cutting relation relative to the blade I³ of the fixed shearing

member I. When the desired adjustment of the support J⁴ has been made, the latter is fastened in place on the rock arm K by a screw K⁴ extending through an elongated slot K⁵ formed in the support J⁴.

The rock arm K is provided with a pin K⁶ (see Fig. 9), projecting into the fork end L' of a lever L fulcrumed on a stud L² attached to the arm H⁵ of the bracket H'. The upper end of the lever L is pivotally connected by a link L³ with a head L⁴ mounted to turn on a pivot L⁵ secured to a rock arm N mounted to turn loosely on the upper end of the stud H² forming part of the stand H. The rock arm N is provided with a pivot N' engaged by a head N² pivotally connected by a pitman N³ with the crank disk F', so that when the machine is running the rotary motion of the crank disk F' causes a rocking of the arm N by the action of the pitman N³ and the head N² connected with the arm N. The rocking motion given to the arm N causes a swinging of the lever L owing to the connection of the head L⁴ and the link N³, and the swinging motion of the lever L causes a rocking of the rock arm K owing to the fork L' of the lever L engaging the pin K⁶. Now as the support J⁴ of the movable member J is attached to the rock arm K it is carried bodily along, so that the cutting edge J' of the blade J² operates in conjunction with the cutting edge I⁶ of the fixed blade I³ so that the surplus material D' is cut off immediately above the loops engaging the ring B.

It is understood that the surplus material D' is sheared off on the inward stroke of the blade J², and as the several parts can be minutely adjusted, it is evident that the cutting edges J' and I⁶ always operate in proper relation to each other, to insure a clean cut without danger of cutting any of the loops engaging the points C.

In order to hold the surplus material D' in an upright position during the cutting operation above described it is held up and clamped in place at the time the blade J² begins to cut. For the purpose mentioned the following arrangement is made: A guard O extends over the points C in the rear of the loops of the fabric D, and this guard O extends beyond both sides of the fixed member I of the shearing device, the guard being cut out at the bottom edge for the passage of the blade J². The guard O is held on a bracket O' engaging the stud H², and secured thereon by a set screw O² (see Fig. 5), and the forward end O³ of the guard O is curved outwardly, as indicated in Figs. 1 and 2, so as to direct the cut off surplus material D' to one side of the machine. Now the surplus material D' is temporarily clamped against the guard O by a clamping arm O⁴ mounted to swing on top of the points C in a transverse direction, the said clamping arm O⁴ being hung on a bracket O⁵

secured to the stud H^2 by a set screw O^6 . The arm O^4 is provided near its lower end with an elongated slot O^7 engaged by a crank O^8 , adjustably secured to the support J^4 by a set screw O^9 , and when the machine is running and an oscillating motion is given to the movable member J , then a swinging movement is imparted to the arm O^4 by the action of the crank O^8 held on the support J^4 . Thus the arm O^4 swings in unison with the movable member J of the shearing device, to hold the surplus material D' in an upright position against the front face of the guard O during the time the blade J^2 cuts off the surplus material D' , as previously explained.

In order to push the fabric D back on the points C as far as possible and to hold it there during the cutting off of the surplus material and the subsequent brushing of the seam, the following arrangement is made: A push-back plate P extends under the points C beyond both sides of the shearing device, and this plate P is held on a rod P' mounted to slide vertically in the arm H^5 of the bracket H' , and on the upper end of the rod P' is coiled a spring P^2 which rests on the bracket H' and presses against a collar P^3 held on the upper end of the rod P' . By the arrangement described the push-back plate P is held by spring pressure against the under side of the points C , and the rear end P^4 of the push-back plate P is curved outwardly to produce a gradual pushing back of the fabric D on the points C immediately previous to the fabric reaching the shearing device. The fabric D after the surplus D' is cut off is carried by the intermittently revolving point ring B to a brush Q reciprocating lengthwise of the seam of the fabric to loosen the short pieces of yarn, lint and other extraneous matter still retained by the fabric loops engaging the points C , the said extraneous matter being finally removed by another brush R moving transverse to the seam of the fabric.

The brush Q is provided with an upwardly-extending rod Q' adjustably secured by a set screw Q^2 in the arm N , so that when the latter is caused to oscillate the bristles of the brush Q brush the seam of the fabric in a lengthwise direction for the purpose above mentioned. By holding the brush adjustable in the arm N , it is evident that the bristles of the brush Q can always be held in contact with the seam in case the bristles wear. The transversely-swinging brush R has its back fastened by a set screw R' on a rod R^2 fastened by a set screw R^3 in an arm R^4 mounted to swing on a stud R^5 (see Fig. 4) held on the arm H^6 of the bracket H' . On the arm R^4 is arranged a pin R^6 engaged by the fork end R^7 of an arm R^8 attached to the rock shaft K^2 , so that when the machine is running and the shaft K^2 is rocked then a

swinging motion is given to the arm R^4 and to the brush R , to move the bristles thereof transversely across the seam of the fabric. The brush R in moving over the fabric in the manner described brushes off the extraneous matter previously loosened by the brush Q , and in order to remove any extraneous matter that may adhere to the bristles of the brush R the latter passes through a comb S secured on a rod S' adjustably secured by a set screw S^2 in the arm H^6 of the bracket H' . The finished fabric after leaving the brush R and its comb S is removed from the points C by the operator, and another fabric is then placed on the points C by the operator.

In order to move the loops of the fabric well up on the points C use is made of a brush T having its back secured by a set screw T' (see Fig. 3) to an arm T^2 fastened by a screw T^3 to the pitman N^3 , so that when the latter moves transversely at the time the crank disk F' nears the bottom position, then the bristles of the brush T engage the loops and brush the same well up on the points C , and on the return stroke of the pitman N^3 the brush T is carried back a distance above the fabric so as not to interfere with the same.

The operation is as follows: When the machine is running, a finished fabric is removed from the points C immediately after the fabric leaves the brush R , and then the fabric to be sewed is placed in position on the points C and the loops of the fabric are pushed up on the points C by the action of the brush T on the forward traveling of the fabric with the points C held on the intermittently rotating point ring B . As the fabric advances, the needle E sews the edges together to form a seam and to close the gap in the toe portion of the fabric. The fabric is now carried around by the points of the intermittently revolving point ring B , and the fabric finally engages the push-back plate P and the guard O , and the surplus material D' is sheared off by the action of the shearing device having its movable member J swinging inwardly to cut the fabric at the time the ring B is at its period of rest, and when the ring B is revolving and with it the fabric, the movable member J swings outward. The fabric is carried along by the points C , while the surplus material D' is gradually deflected outwardly by the forward curved end O^3 of the guard O , and as the fabric advances it is engaged by the brush Q which brushes the seam in a longitudinal direction, thus loosening the short pieces of thread, lint and other extraneous matter held in the loops engaging the points C . The fabric in advancing is finally brought to the brush R which brushes the seam in a transverse direction to remove the extraneous matter, the brush itself being cleaned by its passage through the comb S , and when the fabric has finally left the brush R it is removed from the points C and an-

other fabric to be sewed and trimmed is placed in its stead on the points C and the above-described operation is repeated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a trimmer for knit-goods looping machines, a stationary segmental cutter, an oscillating segmental cutter, and means for holding up the surplus material while cutting the same, said means comprising a guard arranged over the cutting edges of the fixed cutter and spaced therefrom to permit of the passage of the oscillating cutter onto the fixed cutter, and a swinging clamping arm operated by the oscillating cutter for clamping the material against the guard.

2. A trimmer for knit goods looping machines, provided with a shearing device for shearing off the surplus material of the fabric, comprising a fixed segmental blade, a rock arm, a blade support held adjustably on the said rock arm and a blade adjustable on the said support and operating in conjunction with the said fixed blade.

3. A trimmer for knit goods looping machines, provided with a shearing device for shearing off the surplus material of the fabric, comprising a fixed segmental blade, a rock arm, a blade support held adjustably on the said rock arm, a blade held adjustably on the said support and operating in conjunction with the said fixed blade, a fixed guide, and a swinging clamping arm operating in conjunction with the said guide to clamp the surplus material during the shearing operation, the said swing arm being connected with the said adjustable blade support.

4. In a trimmer for knit goods looping machines, a stand for attachment to a fixed part of the looping machine, a rock shaft mounted on the stand, a rock arm rocked by the said shaft, an adjustable support carried by said rock arm, a shearing member adjustably secured to the support, and a fixed shearing member mounted on the stand.

5. A trimmer for knit goods looping machines, comprising a stand for attachment to a fixed part of the looping machine, a rock arm mounted on the said stand, a rock shaft mounted on the said stand and connected with the said rock arm, an oscillating shearing member mounted on the said rock shaft, a fixed shearing member mounted on the said stand, a guard fixed on the said stand, said guard extending over the cutting edge of the fixed shearing member and having a cut out portion in its lower edge for the passage of the oscillating shearing member and a clamping arm mounted to swing on the said stand and connected with the said oscillating shearing member to be operated thereby.

6. A trimmer for knit goods looping machines,

comprising a stand for attachment to a fixed part of the looping machine within the point ring, a rock arm mounted on the said stand to swing over the points of said ring, a rock shaft mounted on the said stand, an oscillating shearing member mounted on the said rock shaft, a connection between the rock arm and the shearing member, a fixed shearing member mounted on the said stand, and a brush having a rod mounted in the free end of the said rock arm for brushing the fabric seam in the direction of its length.

7. In a trimmer for knit goods looping machines, a stand for attachment to a fixed part of a looping machine, a pivoted lever mounted on the stand and having a forked end, a rock shaft mounted in the stand and provided with an arm having a pin engaging the fork of the said lever, an adjustable support carried by the arm of the rock shaft, a shearing blade secured to said support, and a fixed shearing blade carried by the stand.

8. A trimmer for knit goods looping machines, comprising a stand for attachment to a fixed part of the looping machine, a rock arm mounted on the said stand, a rock shaft mounted on the said stand and connected with the said rock arm, an oscillating shearing member mounted on the said rock shaft, a fixed shearing member mounted on the said stand, and a push-back plate yieldingly mounted on the said stand extending directly under the points of the looping machine.

9. A trimmer for knit goods looping machines, provided with an oscillating arm, a pitman connecting the said oscillating arm with the crank disk on the main shaft of the looping machine, a brush held on the said pitman for brushing the fabric loops inward on the points of the looping machine, an arm adjustably secured on the said pitman, and a brush having its back adjustably secured on the said arm for brushing the fabric loops inward on the points of the looping machine.

10. In a trimmer for knit goods looping machines, a fixed shearing member, an oscillating arm, a support carried by the arm, a shearing member carried by the support, a fixed guard above the fixed shearing member and between which and the said fixed shearing member the oscillating shearing member is adapted to pass, an oscillating clamping arm, and a connection between the clamping arm and the support for operating the clamping arm in unison with the oscillating shearing member.

11. In a trimmer for knit-goods looping machines, a fixed shearing blade, an oscillating arm, a support carried by the arm, a shearing blade carried by the support, a fixed guard, an oscillating clamping arm having a slot at its lower end, and a crank carried by the support and working in the slot of the clamping arm.

12. In a trimmer for knit goods looping machines,

machines, a rock arm, a pivoted lever operated by the rock arm, a rock shaft having an arm, a shearing member carried by the arm of the rock shaft, a connection between the
5 pivoted lever and the arm of the rock shaft for operating the latter, a fixed shearing member, and a brush carried by the rock arm.

13. In a trimmer for knit goods looping
10 machines, an oscillating shearing member, a fixed shearing member, a rock shaft provided with an arm carrying the oscillating

shearing member and with a second arm having a forked end, a pivoted arm having a pin engaging the fork of said arm, and a brush
15 carried by the pivoted arm.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM JAMES STEERE.

Witnesses:

FRED G. HAGGARD,
SAM R. SPARKS.