

No. 617,859.

Patented Jan. 17, 1899.

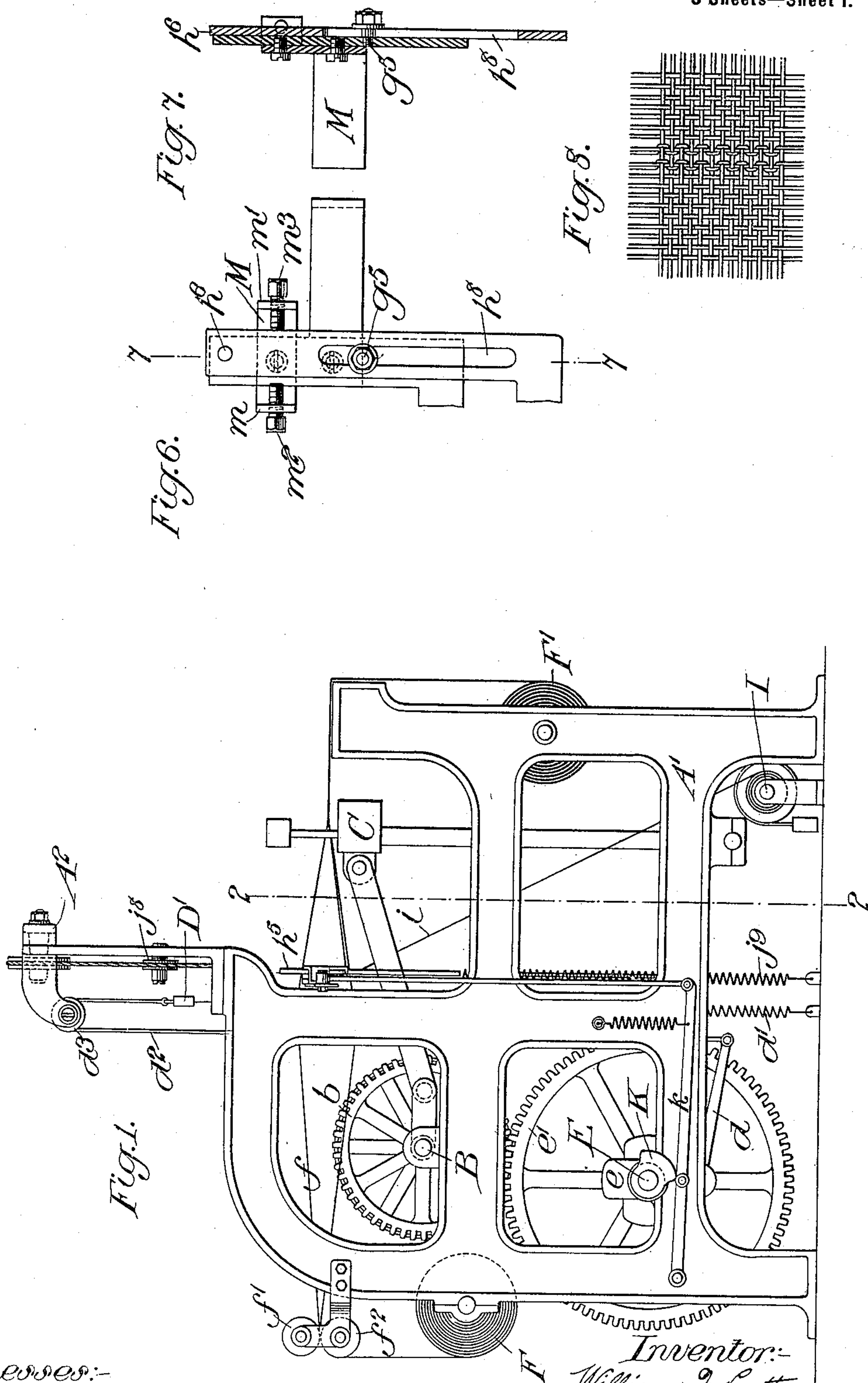
W. J. LUTTON.

INTERMEDIATE SELVAGE FORMING MECHANISM FOR LOOMS.

(Application filed Apr. 21, 1898.)

(No Model.)

3 Sheets—Sheet I.



Witnesses:-
M. E. Fletcher
Edward Kieser

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by attorneys.
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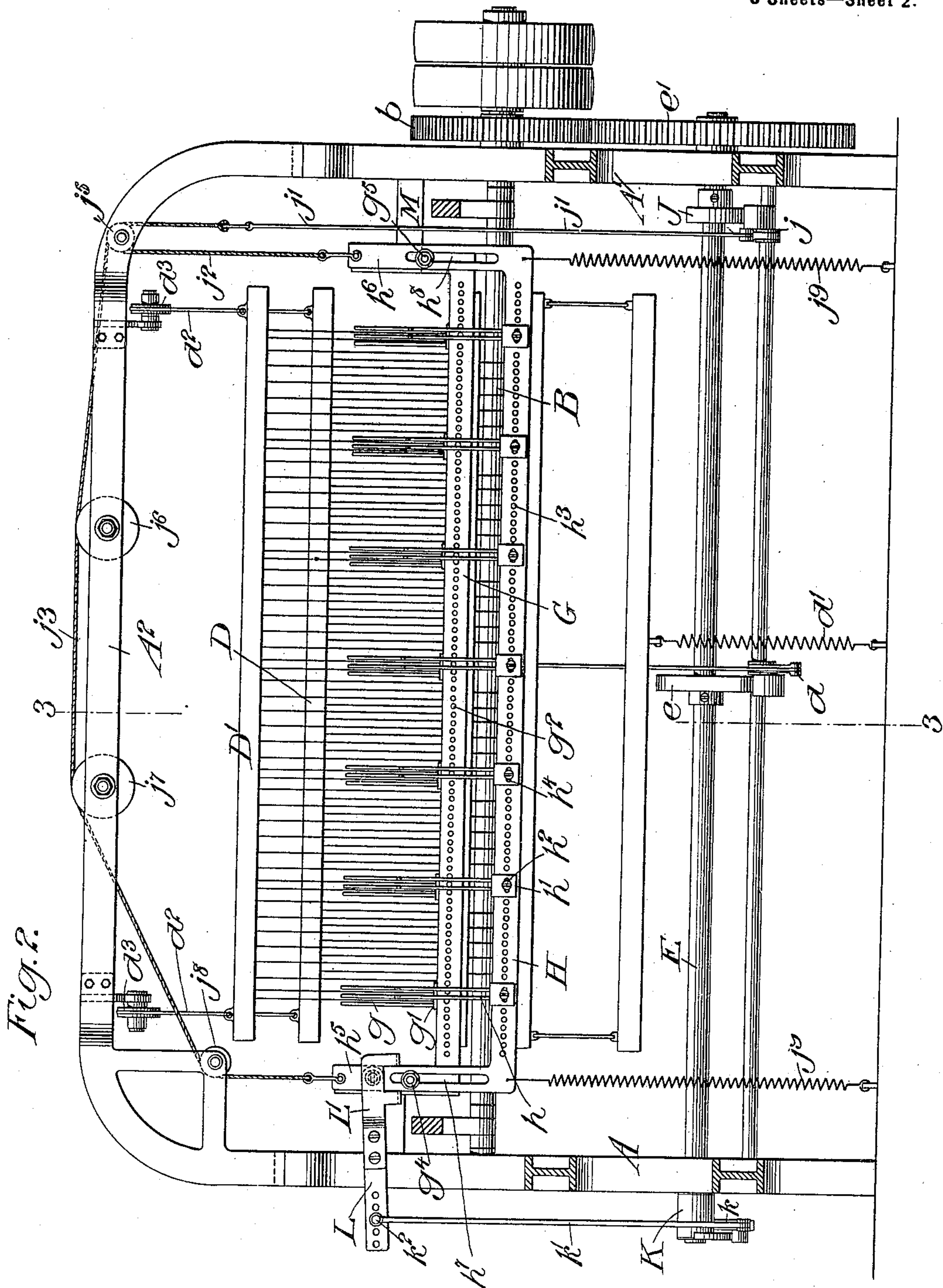
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3 Sheets—Sheet 3.

Fig. 4.

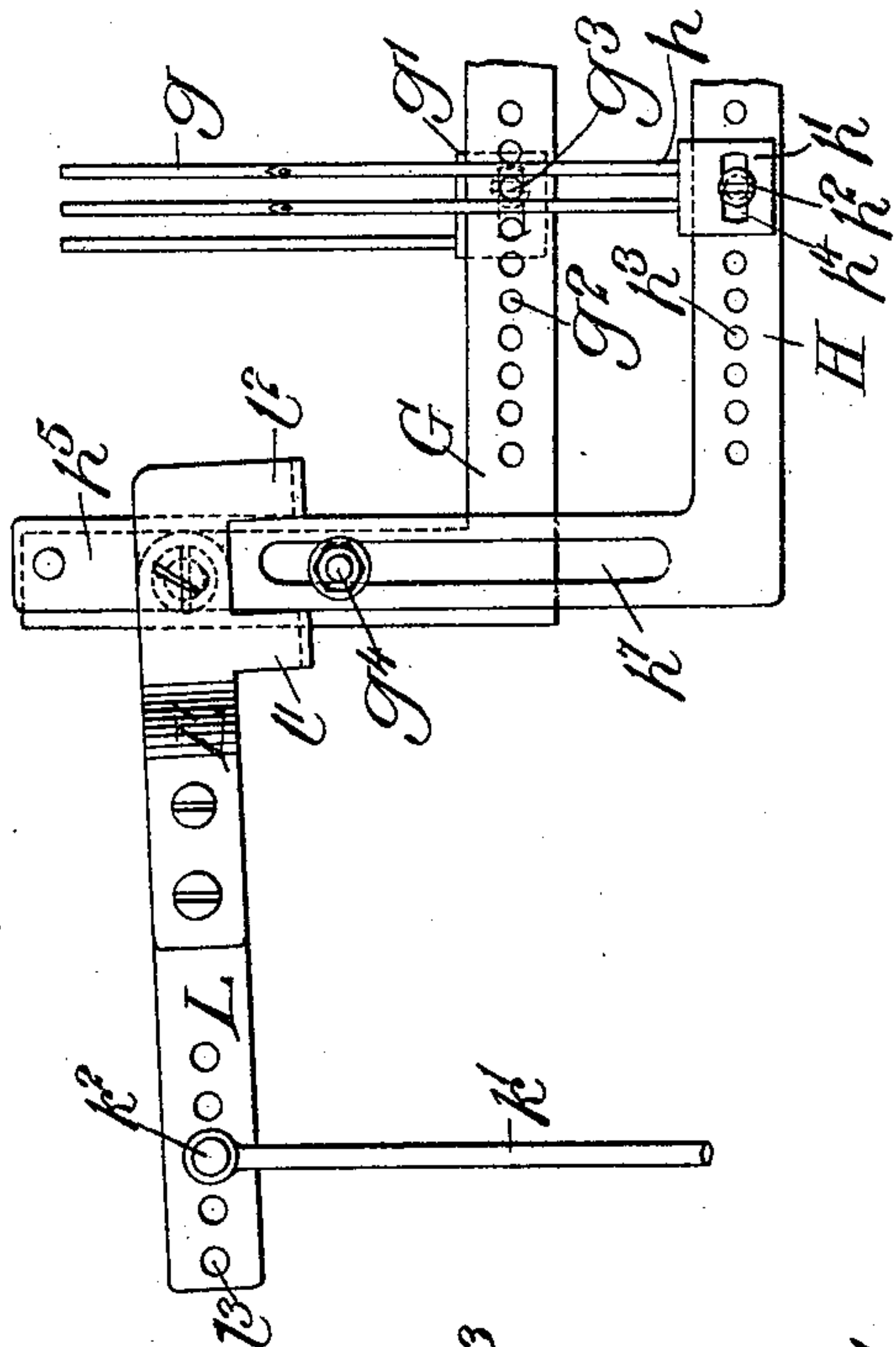


Fig. 5.

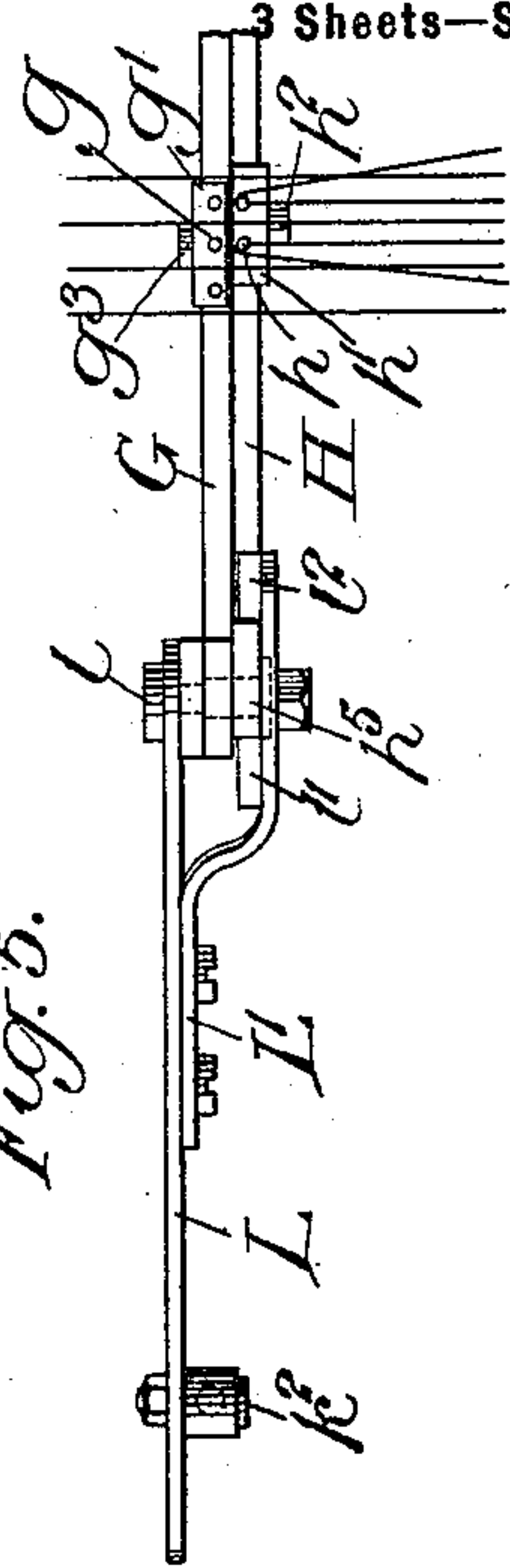
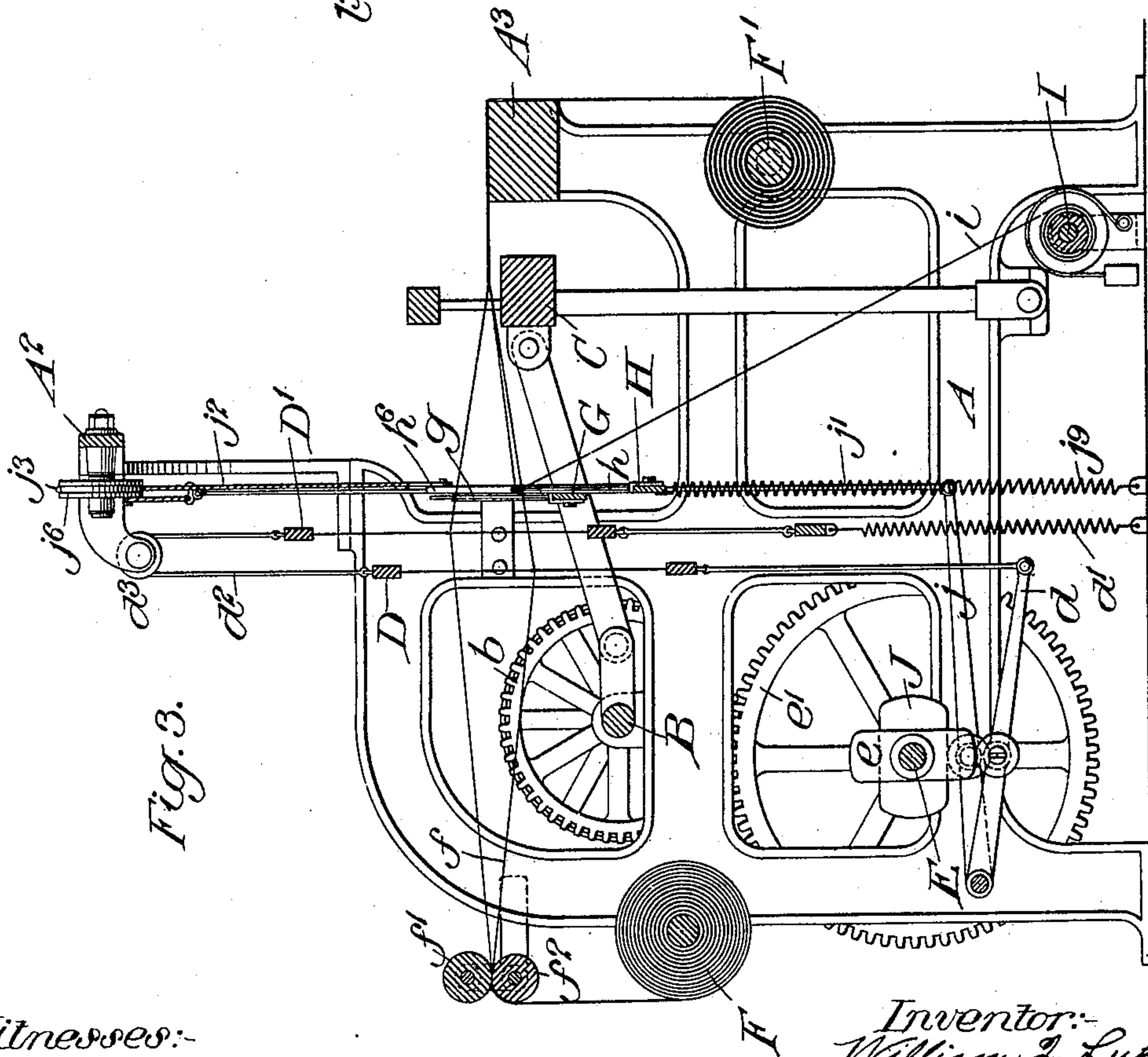


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM J. LUTTON, OF PATERSON, NEW JERSEY.

INTERMEDIATE-SELVAGE-FORMING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 617,859, dated January 17, 1899.

Application filed April 21, 1898. Serial No. 678,332. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. LUTTON, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented new and useful Improvements in Intermediate-Selvage-Forming Mechanism for Looms, of which the following is a specification.

My invention relates to certain improvements in looms, the object being to provide means for inserting additional warp-threads into the fabric to form a cross or gauze weave therein, and more particularly to provide a very simple and effective mechanism for inserting additional warp-threads into the weave to form selvages therein at predetermined distances apart, along which the solid fabric may be cut to form ribbons or strips of desired widths.

The object of my invention is to provide mechanism of the above character which may be applied to the loom without interfering in any manner with the regular weaving of the fabric thereon and without the necessity of a special arrangement of the regular warp and weft threads of the fabric.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a side view of a loom having my improved mechanism attached thereto. Fig. 2 is a transverse vertical section of the loom, taken in the plane of the line 2 2 of Fig. 1, looking toward the rear. Fig. 3 is a vertical section from front to rear through the loom, taken in the plane of the line 3 3 of Fig. 2. Fig. 4 is an enlarged detail front view of a portion of the movable needle-bar and reed at one side of the loom and the lever for imparting the lateral reciprocatory movements to the needle-bar. Fig. 5 is a top plan view of the parts represented in Fig. 4. Fig. 6 is an enlarged detail front view of a portion of the needle-bar and reed at the other side of the loom, the said view also showing adjusting means for determining the limits of the lateral movements of the needle-bar. Fig. 7 is a vertical central section taken in the plane of the line 7 7 of Fig. 6, and Fig. 8 is an exaggerated view of a portion of the fabric, showing the style of weave formed by the insertion of the auxiliary warp-threads.

The loom may be of any of the usual forms now in use.

The loom which I have represented herein comprises the usual side frames A A', top connecting-beam A², main drive-shaft B, and slay-beam C, connected to the said shaft. A pair of heddles D D' are arranged to have alternate up and down movements, one of said heddles being connected to the free end of a rocking lever d, under the control of a cam e on a rotary shaft E, connected with the main drive-shaft B by gearing e' and b. The other heddle is connected with the floor or other suitable stationary support by means of a retracting-spring d', the tendency of the said spring being to pull the heddle D' downwardly, and thereby the heddle D upwardly, because of the flexible connections d² between the said heddles, which pass over pulleys d³, supported by the top cross-beam A².

The regular warp-threads f lead from the warp-beam F between suitable spreading-rolls f' f², and from thence through the eyes in their respective heddles, so as to form the warp-sheds, the fabric as it is completed being led over the breast-beam A³ to the take-up roll F' in the usual manner. I have not represented herein the mechanism for supplying the weft-threads of the loom, as it is not necessary to the understanding of the present invention.

The mechanism for introducing the auxiliary warp-threads into the fabric as it is being woven consists of the following parts: A stationary reed-bar G is secured between the side frames of the loom in close proximity to and in front of the heddles. The reed-bar is provided with reeds g, which are arranged in groups along the reed-bar G at intervals, the distances between the groups being adjusted according to the places in which the auxiliary warp-threads are to be woven when it is intended to weave selvages in the fabric. These groups of reeds g are preferably mounted in brackets g', which are adjustably secured along the bar G in the present instance by providing the bar with a plurality of holes g², located very closely together along the entire length of the bar, and providing the bracket g' with a locking-bolt g³, which is caused to enter one of the said holes g².

The vertically and laterally movable nee-

dle-bar is denoted by H, and it is located in front of the heddles and the reed-bar and in close proximity to the reed-bar. The needle-bar H is provided with a row of needles h , which are arranged in groups along the needle-bar H, in front of the groups of reeds g , when it is intended to weave a plurality of selvages in the fabric. These groups of needles are made adjustable along the bar H toward and away from each other by mounting each group of needles in a bracket h' and providing the bracket with a clamping screw or bolt h^2 , which is caused to enter one of a series of holes h^3 extending the entire length of the bar H. Each group of needles may be adjusted a slight distance laterally by providing the bracket h' with a lateral elongated slot h^4 , through which the screw-bolt h^2 passes. The bar h is provided at its opposite ends with upwardly-extended arms or branches h^5 h^6 , which branches are provided with vertically-elongated slots h^7 h^8 . Guiding and retaining bolts g^4 g^5 are extended through said slots into engagement with the stationary reed-bar G, which bolts are of considerably less diameter than the width of the slots h^7 h^8 , whereby the said bolts serve to retain the needle-bar and its needles in proximity to the reed-bar and at the same time permit the needle-bar an extended vertical movement and a limited lateral movement.

An auxiliary warp-beam I is suitably mounted in the loom, in the present instance near the front thereof, and from the said beam the warp-threads i lead to the needles h without passing through the main heddles D D', and after passing through the eyes of the said needles are led forwardly and woven into the body of the fabric.

The means which I have shown for imparting a vertical reciprocating movement to the needle-bar comprises the following elements: A rocking lever j is engaged by a cam J on the shaft E, which lever is connected with the arms h^5 h^6 of the needle-bar by means of flexible connections. These flexible connections in the present instance comprise a rod j^1 , leading upwardly from the free end of the rocking lever j at one side of the loom, and a pair of cords j^2 j^3 , the one leading over a pulley j^5 and down into engagement with the arm h^6 and the other leading over pulleys j^5 j^6 j^7 j^8 and from thence down into engagement with the arm h^5 . Retracting-springs j^9 lead from the floor or other suitable support to the needle-bar, serving to hold the rocking lever j at all times in engagement with the cam J.

The needle-bar is reciprocated laterally independently of its vertical reciprocatory movement by means of a cam K on the shaft E, which engages a spring-actuated rocking lever k , the free end of which lever is connected to the needle-bar-operating lever L by a suitable rod k' . The lever L is pivoted at l at its inner end to the reed-bar G, and it is provided with a branch arm L', which is pro-

vided with operating-lugs l' l^2 , arranged in position to engage the opposite sides of the arm h^5 of the needle-bar H. The upper end of the connecting-rod k' is adjustably connected toward and away from the pivot l of the lever to increase or diminish the amount of lateral movement which the said lever will impart to the bar H. In the present instance this adjustable connection is arranged for by providing the outwardly-extended arm of the lever L with a series of holes l^3 , with one of which a suitable bolt or pin k^2 , carried by the upper end of the rod k' , will engage.

In Figs. 6 and 7 I have represented means for adjusting the amount of lateral movement of the needle-bar other than the width of the slot h^8 . This means comprises a bracket M, secured to the reed-bar G and provided with forwardly-extended arms m m' , with which are engaged adjusting-screws m^2 m^3 , which are in position to be alternately engaged by the uprising arm h^6 of the needle-bar. By these adjusting-screws the needle-bar may be also adjusted bodily a short distance in one direction or the other.

The operation of my device is as follows: The regular warp-threads of the fabric between which the additional warp-thread is to be inserted are led from the heddles D D' through the reeds g . The auxiliary warp-threads are led from the beam I up and through the eyes in the needles and from thence forwardly. As the loom is operated to form the sheds of warp the needle-bar is not only moved up and down regularly to cause its auxiliary warp-threads to form sheds with the other warp-threads, but it is also moved laterally when the needles are in their lowered position for causing them to carry the auxiliary warp-threads upwardly, first on one side of their corresponding regular warp-threads and then on the other side thereof. This movement, in connection with the insertion of the regular weft-thread, (not shown,) forms the weave shown in an exaggerated scale in Fig. 8.

When selvages are to be woven, the needles are arranged in groups, as shown, and the auxiliary warp-threads are then led to these groups, and from thence they are woven into the fabric as above described. The solid fabric may then be cut along between the selvage insertions to form strips or ribbons. These ribbons may be formed of different widths by adjusting the reeds and needles along their respective bars, as has been hereinbefore fully set forth. By this arrangement the auxiliary warp-threads are not required to be passed through the regular heddles of the loom.

Instead of inserting only two threads at each selvage, as herein shown, it is understood that any number may be inserted, as may be desired.

It is evident that changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish

to limit myself strictly to the structure herein set forth; but

What I claim is—

1. In a loom, the combination with the regular heddles and their operating mechanism, of a needle-bar mounted in proximity thereto for feeding auxiliary warp-threads into the fabric being woven, the needles on the said bar being arranged in groups and adjustable along the bar for locating them at predetermined intervals apart, means for reciprocating the needle-bar vertically and means for reciprocating the needle-bar laterally, substantially as set forth.

2. In a loom, the combination with the regular heddles and their operating mechanism, of a stationary reed-bar located in front of the heddles, the reeds on said bar being arranged in groups and adjustable along the bar for arranging them at predetermined distances apart and a needle-bar mounted in proximity to the said reed-bar, the needles of the needle-bar being arranged in groups to correspond with the reeds, means for reciprocating the needle-bar vertically and means for reciprocating the needle-bar laterally, substantially as set forth.

3. In a loom, the combination with the regular heddles and their operating mechanism, of a reed-bar, a needle-bar having a pin-and-slot connection with the reed-bar, means for reciprocating the needle-bar vertically and means for reciprocating the needle-bar laterally, substantially as set forth.

4. In a loom, the combination with the regular heddles and their operating mechanism, of a reed-bar located in front of the said heddles, a needle-bar having vertically-elongated

slots at its opposite ends and pins or bolts of less diameter than the widths of the said slots projecting from the reed-bar through the slots and provided with means for retaining the needle-bar in proximity to the reed-bar, means for reciprocating the needle-bar vertically and means for reciprocating the needle-bar laterally, substantially as set forth.

5. In a loom, the combination with the heddles and their operating mechanism, of a reed-bar, a needle-bar having a vertically-elongated slot, a pin or bolt of less diameter than the width of the slot projecting there-through from the reed-bar and serving to hold the needle-bar in proximity thereto, means for reciprocating the needle-bar vertically means for reciprocating the needle-bar laterally and means for adjusting the amount of lateral movement of the needle-bar, substantially as set forth.

6. In a loom, a needle-bar having a series of holes throughout its length, a needle-supporting bracket having an elongated slot in line with said holes, needles uprising from the said bracket and a bolt entering said elongated slot and one of the said holes whereby the needles may be accurately adjusted to any desired position on the needle-bar, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 4th day of April, 1898.

WILLIAM J. LUTTON.

Witnesses:

FREDK. HAYNES,
EDWARD VIESER.