No. 611,768. Patented Oct. 4, 1898.

J. A. BRAUTIGAM.

SEWING MACHINE.

(Application filed Nov. 8, 1897.)

(No Model.) 3 Sheets—Sheet 1.

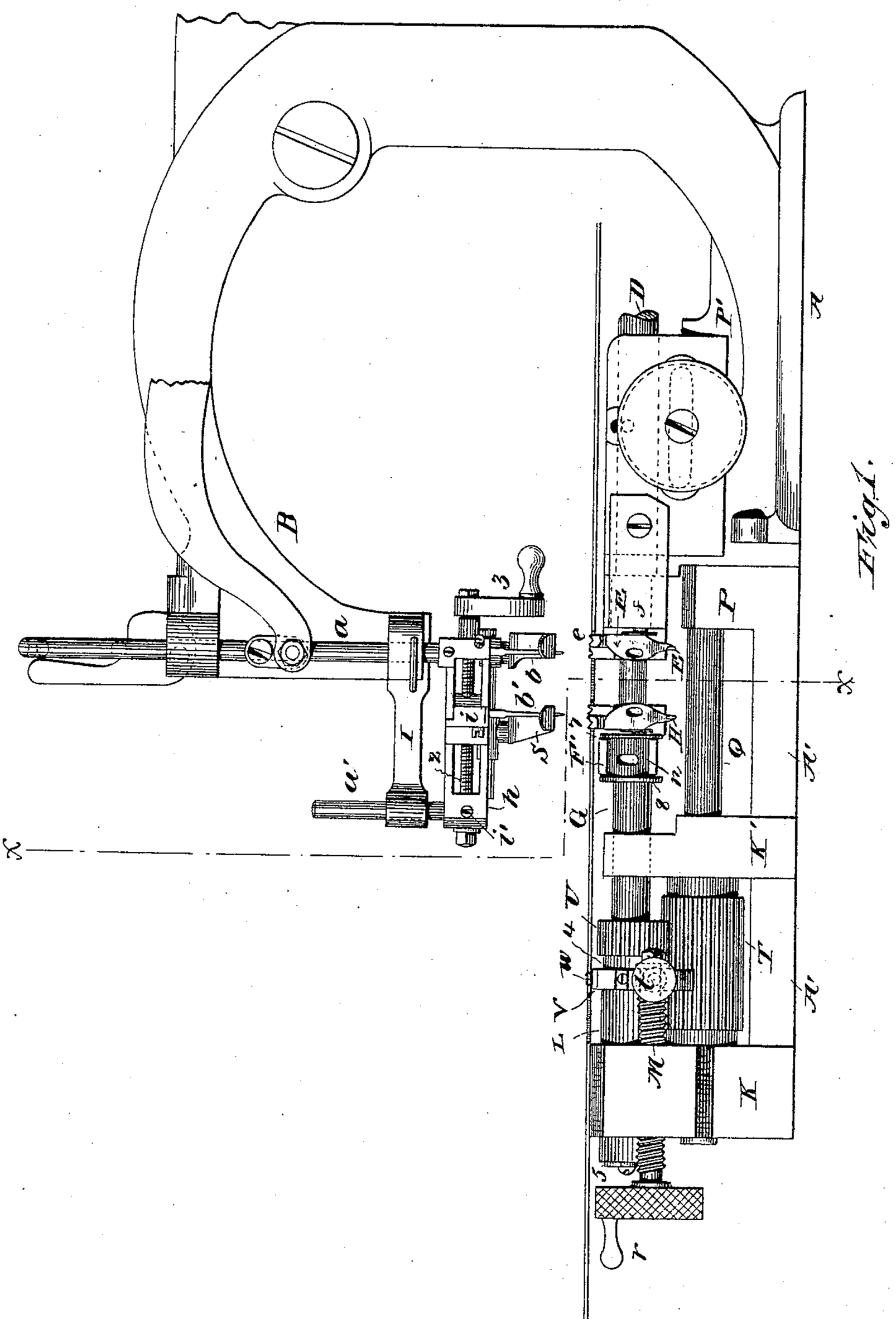

Fig. 1.

Witnesses;
C. W. Benjamin.
A. J. Hanson.

Inventor;
Joseph A. Brautigam
by Earle H. Smith
atty.

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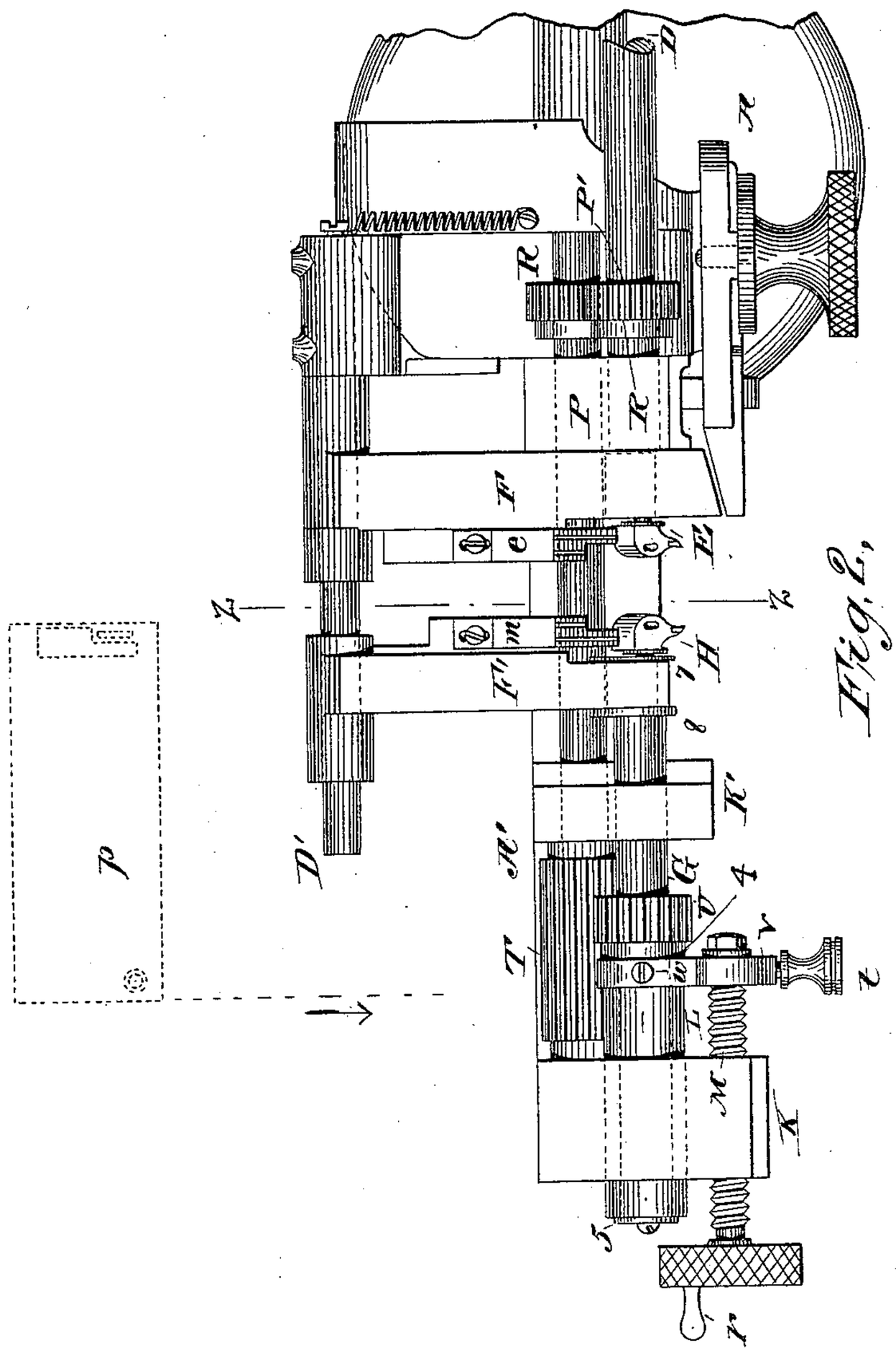

Fig. 2.

Witnesses;
C. H. Benjamin.
N. J. Hanson

Inventor;
Joseph A. Brautigam
by Earle R. Smith
atty

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Fig. 4.

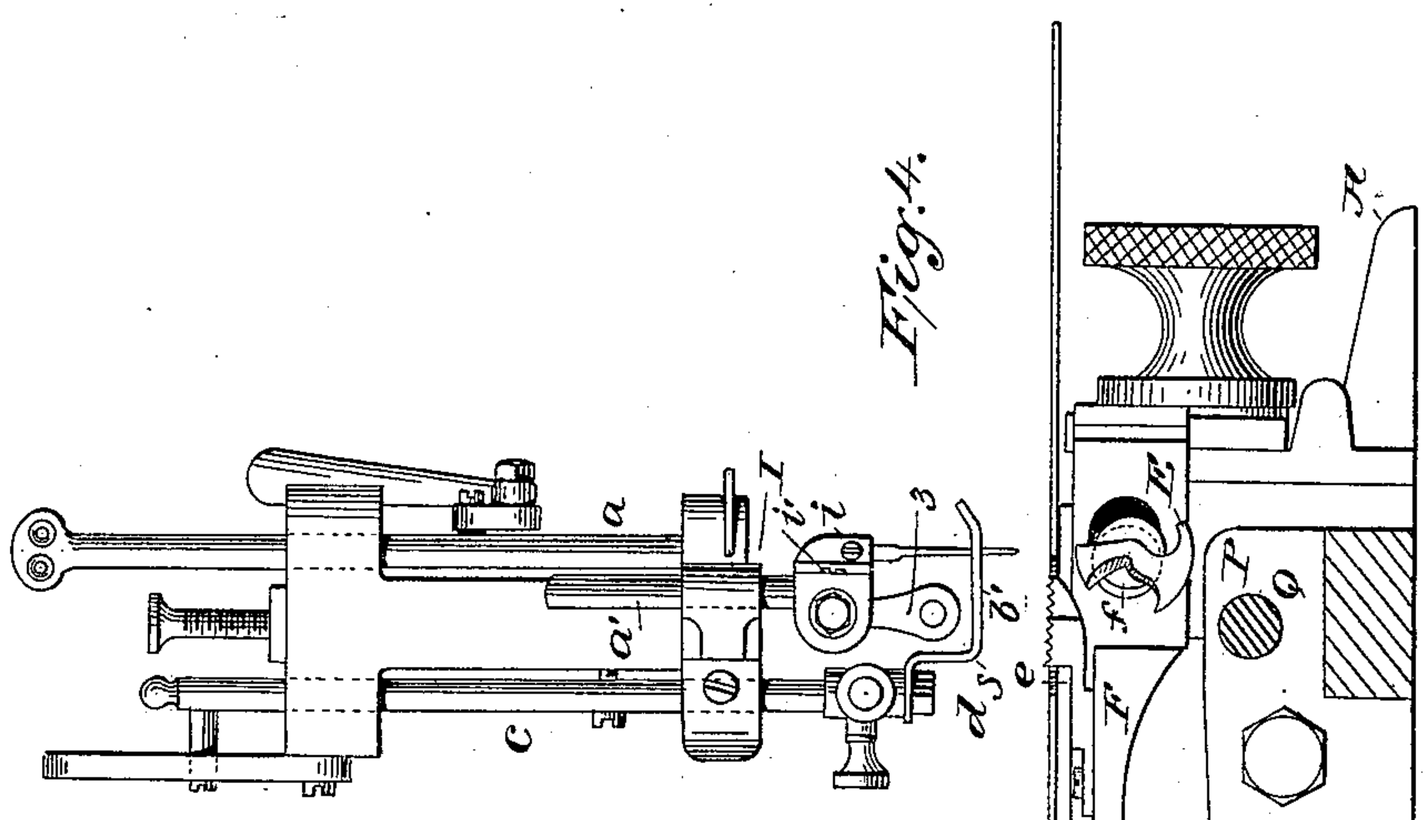


Fig. 3.

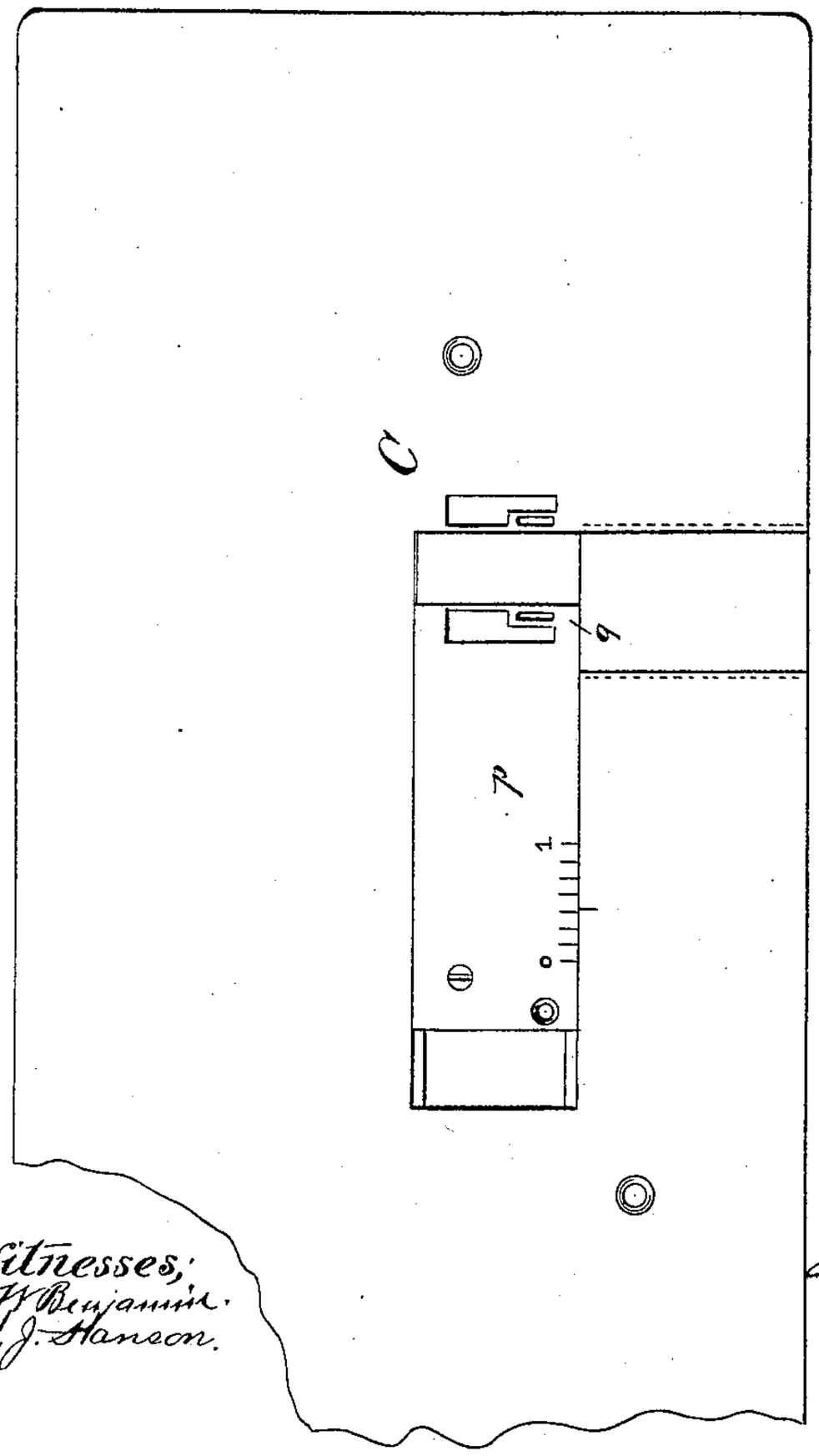
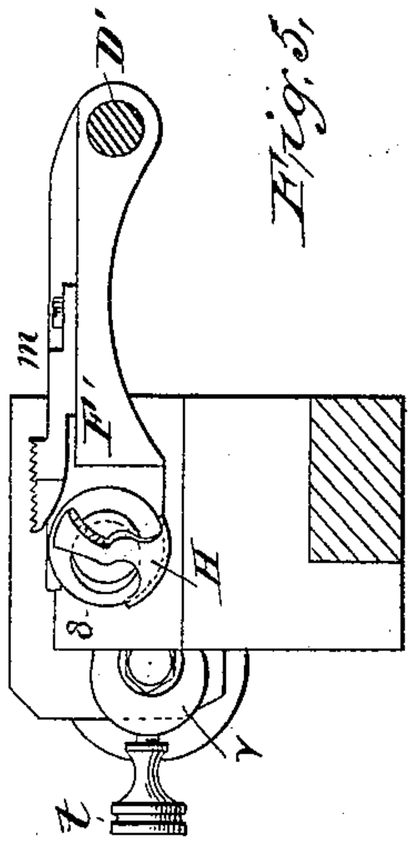


Fig. 5.



Witnesses;
C. F. Benjamin.
H. J. Hanson.

Inventor;
Joseph A. Brautigam
by Earle H. Smith
atty.

UNITED STATES PATENT OFFICE.

JOSEPH A. BRAUTIGAM, OF NEW YORK, N. Y.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 611,768, dated October 4, 1898.

Application filed November 8, 1897. Serial No. 657,899. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. BRAUTIGAM, a citizen of the United States, residing in New York city, in the State of New York, have invented certain new and useful Improvements in Sewing-Machines, whereof the following is a specification.

My invention relates to machines which sew two lines of stitching at once; and it consists in the combination of primary and secondary stitch-forming and feeding devices, wherein the secondary stitch-forming and feeding mechanism are together adjustable toward and away from the primary mechanism by a given distance or any fraction thereof desired and there secured.

For the purpose of illustration I have shown my invention and improvements in the annexed drawings as applied to a machine similar to the Willcox & Gibbs, but are applicable to others.

Referring to said drawings, Figure 1 is a side elevation, partly in section, of so much of a sewing-machine as required to illustrate my invention. Fig. 2 is a plan view with the work-supporting plate removed. Fig. 3 shows the work-supporting plate detached. Fig. 4 shows a front view of the fixed-arm head, with a cross-section of lower works on lines *x x* of Fig. 1, showing the feed-bar and looper. Fig. 5 is a cross-section on lines *z z*, Fig. 2, showing the secondary or reverse looper-feed eccentric and feed-bar.

In the primary stitching mechanism, A. indicates the base of the machine-frame and B the overhanging portion of the fixed arm, at the outer end of which are the primary-needle bar *a*, with its needle *b* therein, and the presser-bar and foot *c d*. A looper coöperates with needle *b* in sewing, such looper here consisting of a rotating hook E, affixed to a main driving-shaft D, from which the needle-bar is reciprocated by usual means. F is the main or primary feed-bar, to which is affixed a feed-dog *e*, which works up through the work-table C in the usual way. Said bar is operated by a small eccentric *f* on the main shaft and located directly behind the primary looper E.

The foregoing are parts of the mechanism for forming the main line of stitching. For the secondary stitching mechanism for sewing the second line of stitching, I is an arm or projection extending out from the fixed arm B and pierced at the extremity to form a guideway for a reciprocating bar *a'*, which may be considered a secondary-needle bar. It is firmly united to the needle-bar *a* by a cross-beam *h*, whereby the bar *a'* reciprocates in unison with the needle-bar *a*. The cross-beam supports a block *i*, which carries the secondary needle *b'*, and said block, the needle *b'*, and a presser-foot *s* are adjustable on the cross-beam laterally toward and away from the primary needle *b*, according to the distance the second line of stitching is required to be from the first or main line. A secondary rotary hook or looper H, affixed to a short shaft G, coöperates with said adjustable needle *b'* in forming the second line of stitching, the two loopers being set to face each other. The main looper takes thread from the right-hand side of the primary needle, but the secondary looper takes thread from the left-hand side of its needle, wherefore they are known as right and left hand loopers or hooks, being the reverse of each other in form, a necessity that arises from the fact that both revolve in the same direction while working on opposite sides of their respective needles. The looper H is adapted to follow the adjustable place of the secondary needle, and for this purpose the looper-shaft G is made susceptible of being longitudinally moved in its bearings. This shaft is journaled in posts K K' on an extension A' of the base A.

The block *i* of the cross-beam *h* is mechanically moved for adjustment on the cross-beam by means of a screw-shaft 2, which is threaded into and through the block *i*, and has a crank-handle 3 affixed thereto for turning it by hand. When the screw-shaft 2 is so turned, the block *i* and needle are moved along the cross-beam and set at any desired distance from the main needle and may be there secured by a set-screw *i'*.

The two loopers E and H are set coincidently with each other on their respective shafts and are caused to revolve synchronously, so as to operate the said loopers in unison. For this purpose Q is a countershaft, one end of which is journaled in bearings P P' of the main frame and the other

end in the posts K K′. The main shaft D imparts its rotary motion to shaft Q through pinions R R′, and such motion is reimparted to the looper-shaft G by pinions T U on shaft Q and the looper-shaft, respectively. One of these pinions, as T, is elongated to enable the other pinion to maintain connection of the two shafts at any place to which the looper H may be adjusted with reference to the main looper E.

A supplementary feeding device is employed arranged for adjustment to follow the secondary needle and its looper H. This device here consists of a secondary feed-bar F′, carrying a feed-dog *m*, and said bar operated by a small eccentric *n*, located directly behind the looper H on the adjustable shaft G. The feed-bar F′ works between two collars 7 8, both affixed to this shaft, whereby such bar is compelled to follow the place of the secondary looper in its adjustments with respect to the main looper E, said feed-bar F′ sliding along on the common fulcrum-pin D′ of both feed-bars. The secondary feed-dog works up through the table C in a small plate *p*, which is pierced at 9 to form the throat for the secondary needle. An opening is made in the work-table C to allow the plate *p* to follow the secondary looper and feed in said lateral adjustment thereof in the longitudinal movement of shaft G, and for this purpose said plate is attached to some part of the secondary mechanism.

To provide for sliding the shaft G longitudinally in its bearings for adjustment of the secondary looper and feed, as aforesaid, a sleeve L is fitted in the post K′, so as to slide freely therein, and one end of said shaft is journaled in this sleeve. This sleeve abuts against a collar 4, made fast to the shaft, and it is prevented from leaving the shaft by another collar 5, also fixed to the shaft, so that the sleeve is thus between two collars. Projecting laterally from the sleeve and in one therewith is an arm V, which has a free connection with one end of a screw-shaft M, the other end of which is threaded into the post K. This screw-shaft has a crank-handle *r* for turning it by hand to move and adjust the looper H. When it is adjusted as wanted, the shaft M is set and held from endwise motion by a set-screw *t* in the end of the sleeve-arm V.

The throat-plate *p* is attached to the sleeve L by a screw *w*, and when the screw-shaft is turned by its crank it moves the sleeve longitudinally, carrying with it the secondary looper, feed, and throat-plate *p*.

In the foregoing invention I do not restrict myself to particular forms when the same may be varied within the invention, and such invention is not confined to chain-stitch sewing-machines where applicable to others.

I claim as my invention—

1. In a two-line-stitching machine, the combination with two sets of stitch-forming mechanism comprising a primary needle, and a secondary needle adjustable thereto, of the overhanging arm, a short arm projecting therefrom having a guideway to receive a guide-rod to which is attached a cross-beam containing a movable block carrying the adjustable needle and means on the cross-beam for moving the block to adjust the secondary needle.

2. In a two-line-stitching machine, the combination of the main frame, its overhanging arm, a primary needle bar and needles, and a rotary hook-looper therefor, a short arm projecting from the main arm providing a vertical guideway for a secondary bar therein, a cross-beam from one bar to the other uniting them, a secondary needle and a rotary hook-looper therefor, an adjustable sliding block on the cross-beam, such block carrying the secondary needle, and means for moving said block on the cross-beam for adjustment of the secondary needle with respect to the primary needle, and means for securing a corresponding adjustment of the secondary looper, substantially as specified.

3. The combination with the primary needle, the adjustable secondary needle, the primary looper the main shaft which carries it and with the secondary looper and its adjustable shaft, of the sliding sleeve in which the latter shaft is journaled and to which it is connected, an arm fixed to such sleeve, and a screw-shaft engaging with such arm to move and adjust the secondary looper by its shaft toward and away from the primary looper as set forth.

4. In a two-line-stitching machine, in combination with a main or primary looper, needle, work-plate, and feed-bar; a secondary looper, needle, throat-plate, and feed-bar, adapted for adjustment transversely to the line of sewing at any desired distance from the primary parts aforesaid, means for moving the secondary needle for adjustment with respect to the primary needle, and means connecting the secondary looper, feed-bar and throat-plate together and with a screw-shaft, whereby the last-named parts are all moved for adjustment at once at one operation, substantially as specified.

JOSEPH A. BRAUTIGAM.

Witnesses:
H. J. HANSON,
R. T. VAN BOSKERCK.