

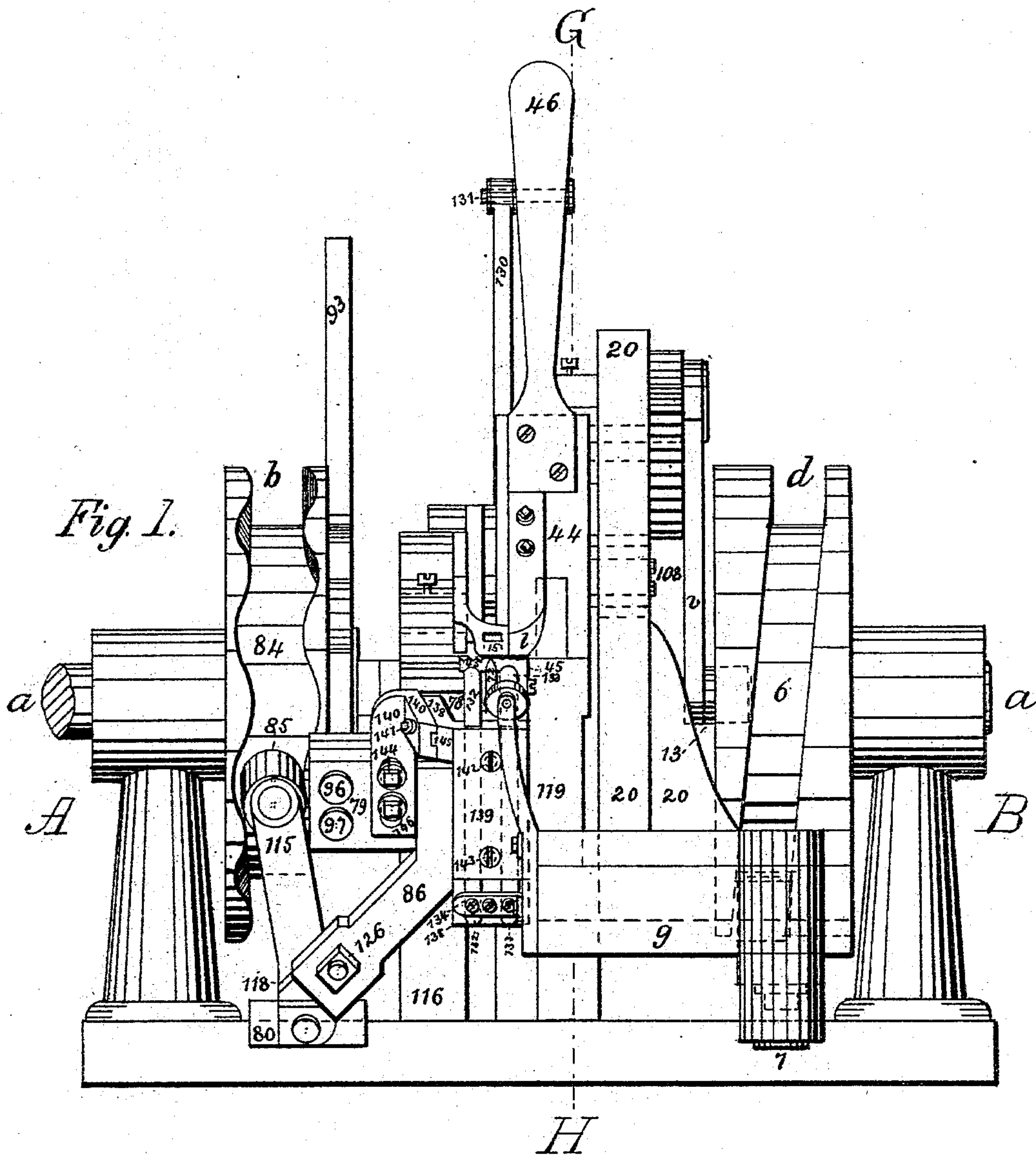
(No Model.)

4 Sheets—Sheet 1.

H. BRIGGS & C. DANCEL.
ROUGH ROUNDING AND CHANNELING MACHINE.

No. 511,263.

Patented Dec. 19, 1893.



Witnesses
A. C. Snyder
Edward L. Perkins

Inventors
Henry Briggs
Christian Dancel
By their Attorney
L. Henry Dancy

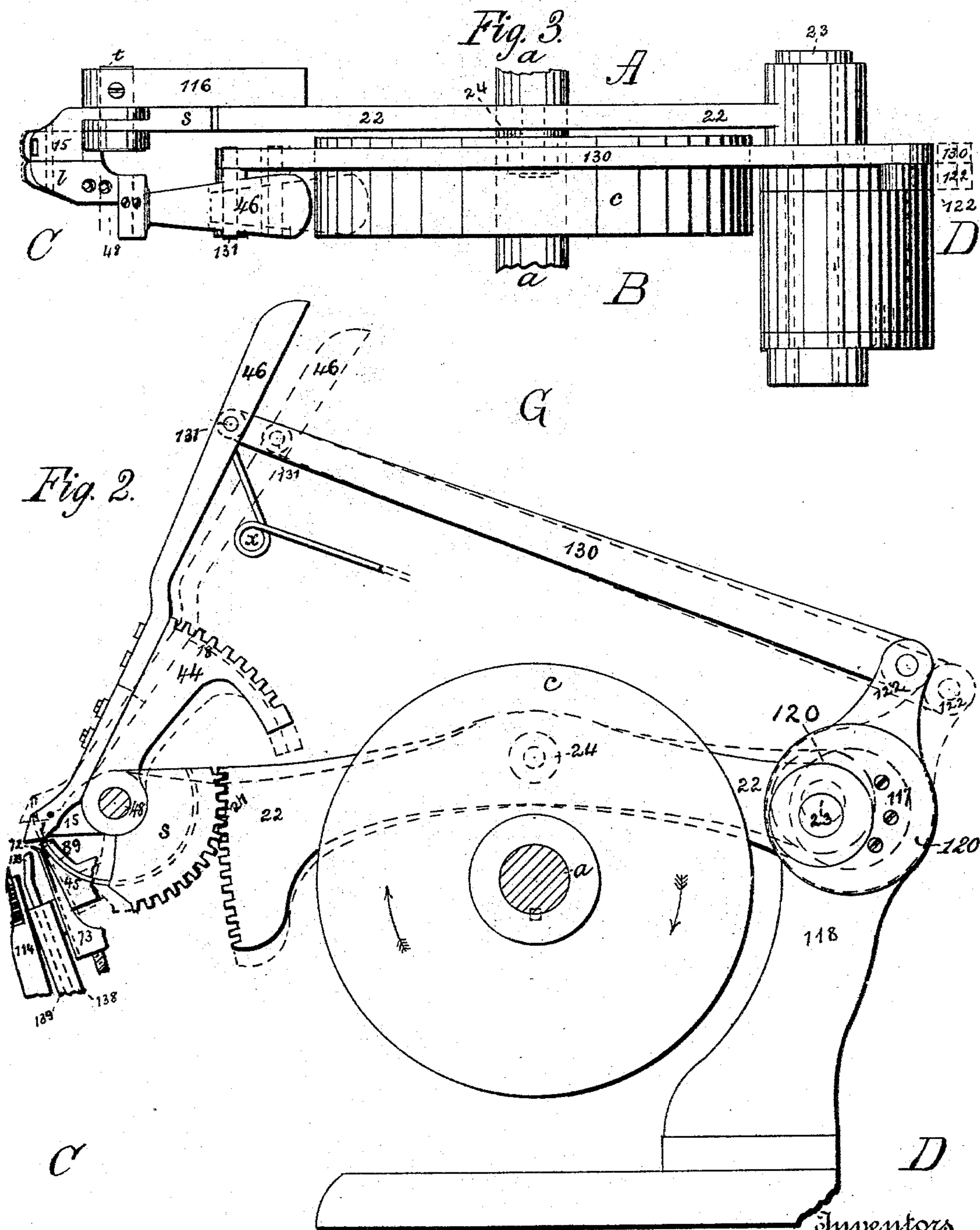
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H

By their Attorney

C. Henry Poney

Inventors

Henry Briggs
Christian Dancel

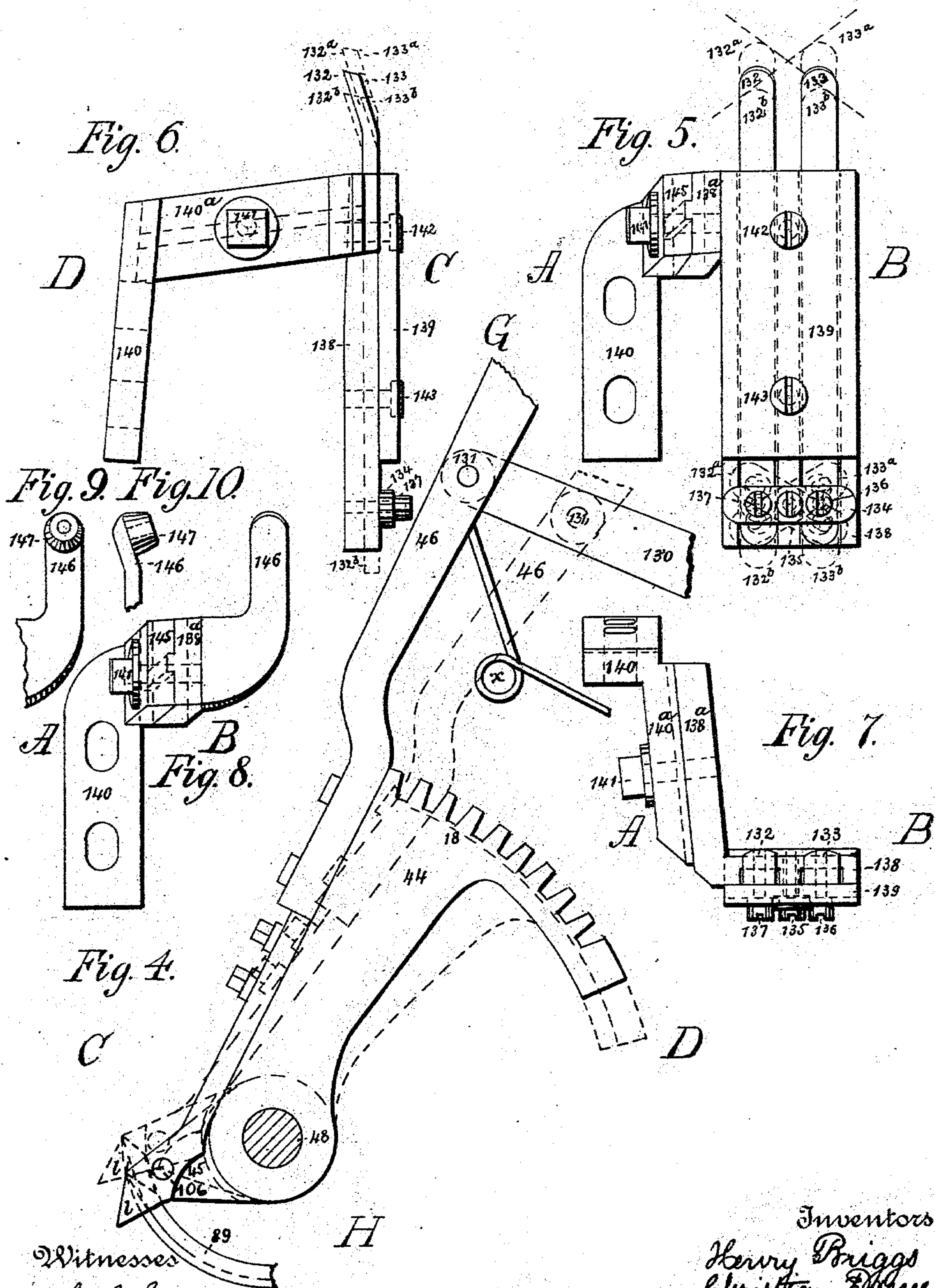
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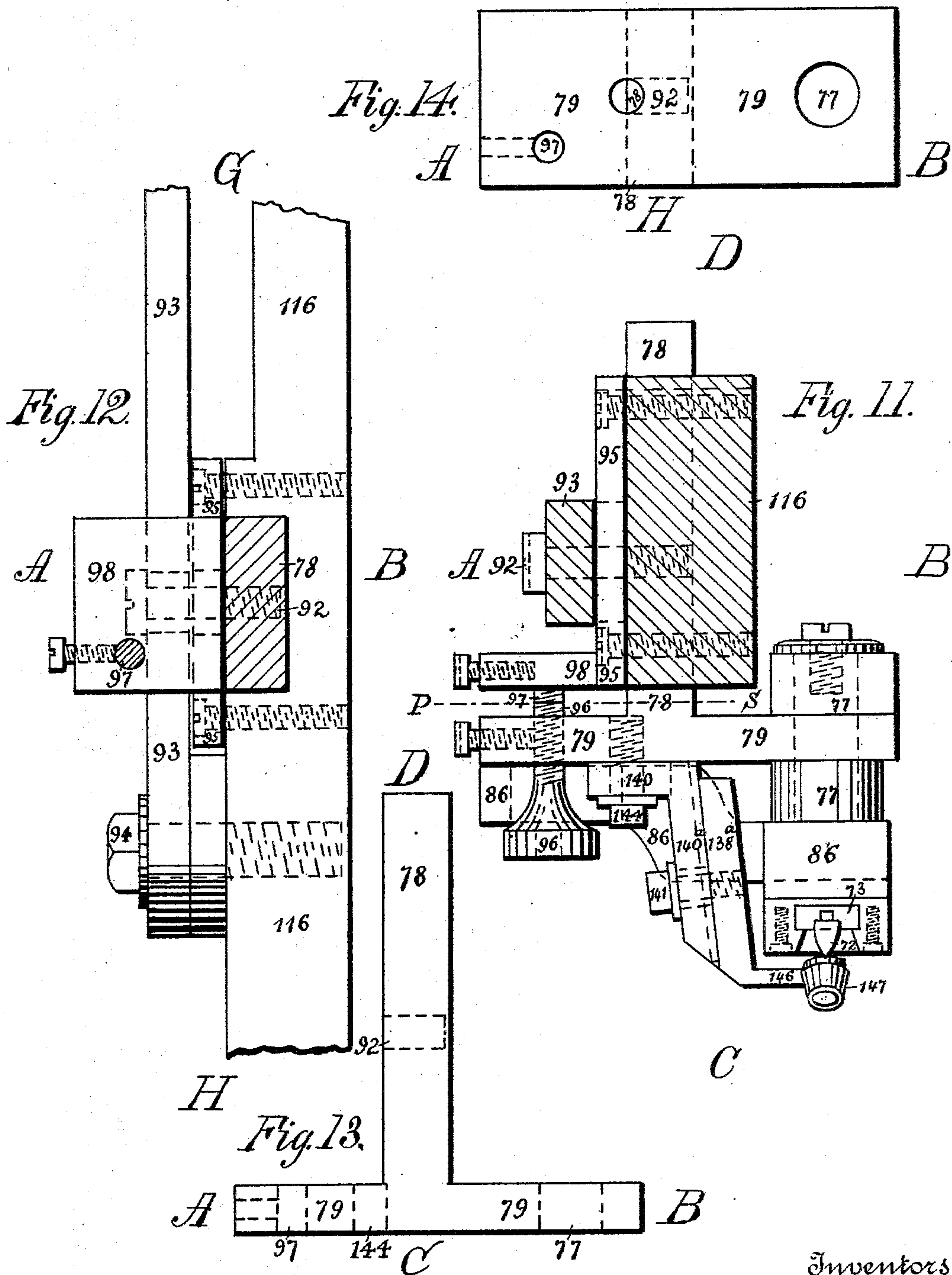
C. Henry Deane

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Edw. L. Perkins

Inventors
Henry Briggs
Christian Dancel
By their Attorneys
Hauff & Hauff

UNITED STATES PATENT OFFICE.

HENRY BRIGGS AND CHRISTIAN DANCEL, OF NEW YORK, N. Y., ASSIGNORS
TO THE GOODYEAR SHOE MACHINERY COMPANY, OF PORTLAND, MAINE.

ROUGH-ROUNDING AND CHANNELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 511,263, dated December 19, 1893.

Application filed September 16, 1892. Serial No. 446,043. (No model.)

To all whom it may concern:

Be it known that we, HENRY BRIGGS and CHRISTIAN DANCEL, citizens of the United States of America, and residents of the city, county, and State of New York, have invented certain new and useful Improvements in Rough-Rounding and Channeling Machines, of which the following is a specification.

Our invention relates to mechanism to automatically adjust the oscillating cutting-blade or rough-rounding knife and to automatically support and adjust the soles of boots and shoes while they are being "rough-rounded and channeled" and is an improvement upon the machine shown and described in United States Letters-Patent No. 463,967 to Henry Briggs.

The object of our invention is, first to provide means for automatically regulating the length of the stroke of the cutting blade during the operation of rough-rounding a boot or shoe so that whatever the variation in the thickness of the sole may be it shall sever the welt and sole without passing completely through and beyond the throat-plate and gage to mar or cut the upper; second, to provide means for moving the work support laterally whenever the channeling-knife is moved laterally, and for moving it the same distance that the channeling-knife is moved, whereby the work support is kept near to and at a constant distance from the channeling-knife; third, to provide two work supports which are free to move vertically, but which are so connected each to the other that when one rises the other descends the same distance, and which are placed one at each side of the channeling-knife, whereby the knife is made to cut a channel of uniform depth regardless of the position in which the work is held, and whatever may be the irregularities in the thickness of the work.

Figure 1 shows a front elevation of our improvements as in operation, with the feed-clamp 1 forward (toward A), and the four-motion drop-feed 45 also forward toward A. Fig. 2 represents a transverse vertical section at G H of Fig. 1, looking from B toward A of Fig. 1, and showing our automatic oscillating cutting-blade adjustment, the solid lines showing the feed-clamp 1 as pressed down on a

thin part of the "work" as the shank, the edge-trimming or oscillating cutting-blade 89 being in operation, the dotted lines showing the feed-clamp 1 when raised by a greater thickness of the sole, as in the forepart, at the same time automatically changing the length of the stroke of the oscillating cutting-blade 89 to correspond with the change of position of the feed-clamp 1. Fig. 3 shows a plan view of Fig. 2; Fig. 4 an enlarged view of part of Fig. 2, showing the automatic adjustment of the feed-clamp 1 and oscillating cutting-blade 89; Fig. 5 an enlarged front elevation of our self adjusting rest or work support; Fig. 6 a side view of Fig. 5, looking from A toward B of Fig. 1. Fig. 7 shows a plan view of Fig. 5; Fig. 8 an enlarged front elevation of our single adjustable rest or work-support; Fig. 9, front view of upper part of Fig. 8, fitted with a roller support or table; Fig. 10, side view of upper part of Fig. 8, looking from A toward B of Fig. 8. Fig. 11 is an enlarged horizontal section through head 116 and hand lever 93, showing a plan view of slide block 78 with its arm 79, cover 95, pivot 77, adjusting screws 96 and 97, vibrating arm 86, channeling knife 72 and carriage 73, bracket 140, arms 140^a and 138^a, work support and channeling knife guard 146 and roller 147, the groove in the head 116 for slide block 78 being shown by dotted lines. Fig. 12 is a vertical transverse section on the line P, S, Fig. 11, across the slide block 78 and looking from C toward D of Figs. 2 and 11. Fig. 13 is an enlarged detail plan view of the slide block 78 with its arm 79; and Fig. 14 is a front elevation of the arm 79.

Similar reference letters and figures indicate similar parts throughout the several views.

Our improvements consist of the eccentric 120 or its equivalent, pivoted on the supporting arm 118, and carrying the pivot or fulcrum 23 of the lever 22, which actuates the oscillating cutting-blade carrying segment 8; the eccentric 120 having a crank 122 to which is pivoted the connecting rod 130, which has its other end pivoted to the hand lever 46 of the feed-clamp 1. We also substitute for the stationary work support or rest 113, described and shown in the letters-patent hereinbefore referred to, our self adjusting work supports

and channeling knife guards 132 and 133, which are carried in a grooved slide-block 138 and its cover 139, being pivoted at or near their lower ends to a balanced lever 134, said lever 134 being pivoted to and carried by the grooved slide-block 138. This arrangement of the work supports and channeling knife guards is advantageous, because whatever the longitudinal angle at which the sole of the shoe is held, the channeling-knife will always be at the same depth in the stock, because when one of the two parallel supports and channeling knife guards 132 and 133 supporting the sole of the shoe is pressed down, the other will rise to a corresponding height with the cutting edge of the channeling-knife 72 as a center. These work supports 132 and 133 (also the single work support 146 when the latter is used) incidentally, in combination with the channeling knife 72, secure a uniform depth of channel in all parts of the sole operated upon, independent of the varying thickness of the sole and welt, inasmuch as they form a guard before and behind the channeling knife.

The slide-block 138 has an arm 138^a provided with a tongue fitted into a groove 145 of the arm 140^a of bracket 140, this bracket 140 being attached to and carried by the arm 79 of slide block 78 which slide block 78 runs in the groove or race in the head or rigid standard 116 of the machine. By this improvement our self adjusting work supports and channeling knife guards 132 and 133 are caused to move in and out with the arm 79, and the channeling-knife 72 and its carriage 73, whereby the work supports and channeling knife guards 132 and 133 are kept near the cutting edge of the channeling-knife 72 and at a constant distance therefrom, enabling the channel to be cut more regularly and to a more uniform depth than was possible with the former fixed support 113, which, as shown in said former patent, was fastened to a stationary part of the machine and did not move when the channeling-knife was laterally moved.

The tongue on the arm 138^a of the slide-block 138 which slides in the groove 145 of the arm 140^a of bracket 140, together with the oblong bolt holes in bracket 140 enable the work supports and channeling knife guards 132 and 133 to be set in any necessary position relative to the channeling-knife 72 and oscillating cutting-blade 89 required by varied styles of work done.

The work support and channeling knife guard provided with a roller 114 is used to regulate the pitch of the shoe in combination with the automatically adjustable work supports and channeling knife guard 132 and 133, and may not be required in some classes of work, when it may be dispensed with if desired.

The operation of a machine with these improvements is as follows: The "work" is inserted in the usual manner by pressing the hand lever 46 backward (toward D) to the po-

sition shown by the dotted lines, thus raising the feed-clamp 1, and the throat-plate and gage 15, while the lock for the feed-clamp (shown in said former patent) is unlocked, and the rough-rounding or oscillating cutting-blade 89 is down, permitting the work to be inserted between the work supports and channeling knife guards 132, 133, four-motion, drop-feed 45, and the throat-plate and gage 15 and feed-clamp 1, until the in seam is against the edges of the two latter parts. The hand lever 46 is then released and forced by the spring α toward the solid lines (toward C), pressing the feed-clamp, 1, and throat-plate and gage 15 against the upper side of the boot or shoe sole and welt operated on. The machine is now put in motion, the lock of the clamp-feed 1 and the throat-plate and gage 15 now locks, and the four-motion drop-feed 45 now rises, clamping the work. The four-motion drop-feed 45 and feed-clamp 1 are next moved forward (from B toward A as shown by the solid lines) by the feed-motion carrying the work clamped between them from B toward A. The oscillating cutting-blade 89 now moves upward through the four-motion drop-feed 45, the sole operated on, and into the opening in the throat-plate and gage 15, separating or rough-rounding the edge of the sole; the length of stroke of the oscillating cutting-blade being varied by our improved mechanism hereinbefore described so as to pass through the sole and welt operated on. In former machines of this character, the oscillating cutting-blade 89 had a fixed length of stroke, so that when adjusted in the segments for a maximum thickness of sole, its stroke could not be changed without stopping the machine and readjusting it, and when set for such maximum thickness of sole (as for the "forepart" of the sole) when it reached the "shank," which might be much thinner, it was liable to penetrate entirely through the throat-plate and gage 15, projecting above the latter and into the "upper" of the boot or shoe operated on and injuring the latter. If set for the minimum thickness of sole it might not penetrate entirely through the thicker portion of the sole, and so might fail to separate it in places. Our improvements as shown overcome this defect, because by our improved mechanism, when the oscillating cutting-blade 89 is set for the minimum thickness of sole (as in the solid lines Figs. 2, 3 and 4) and the thicker portion of the sole is reached, the feed-clamp 1 and throat-plate and gage 15 will be raised toward the dotted lines, moving the hand lever 46 toward the dotted lines (toward D), which moves the connecting rod 130 and eccentric arm 122 (also toward D), partly revolving the eccentric 117 pivoted on the fulcrum arm 118, thereby raising the pivot 23 of the lever 22 and depressing the other end of the latter with its rack 21, correspondingly depressing the rack into which it engages on the segment s, toward the dotted lines, raising the cutting end of the oscillating-blade

89 with the upward movement of the feed-clamp 1 and throat-plate and gage 15, required by the greater thickness of the sole operated on; these movements being reversed when a thinner portion of the sole is again reached. The long sliding pivot 131 or its equivalent permits the feed movement of the hand lever 46 and feed-clamp 1 from A to B and return already described. At the same time the automatically adjusting work - supports and channeling knife guards 132 and 133 accommodate themselves to the longitudinal curves of the sole operated on, as shown by the dotted lines in Figs. 5 and 6 at 132^a, 132^b, 133^a, and 133^b, as the sole is passed over them; when one is depressed the other will rise to a corresponding height, keeping the sole in the same relative position to the channeling-knife 72, so that the channel shall be cut to the same depth both in the "forepart" and in the "shank" of the sole, and also in case the sole is held unevenly longitudinally by the operator. The lock of the feed-clamp 1 and throat-plate and gage 15 next unlocks, the four-motion drop-feed 45 drops, and its backward movement from A toward B takes place, while the throat-plate and gage 15 with the "work" remain stationary. Next the oscillating cutting-blade 89 drops down, leaving the machine in the position it was in when the work was inserted. The spring α presses the hand lever 46, so as to keep the feed-clamp 1 and throat-plate and gage 15 (connected by the pivot 106 as shown in said former patent) pressed down on the upper part of the sole and automatically adjusts them for any variation in the thickness of the sole operated on. When the machine is started, the vibrating channeling-knife 72 is also put in motion, actuated by the cam-wheel b , and continues to operate while the four-motion drop-feed 45, feed-clamp 1 and oscillating cutting-blade 89 are in action, the distance of its channel from the edge of the sole being regulated by moving the hand lever 93. The same movement of the hand lever 93 also regulates the position of the automatically adjustable work supports and channeling knife guards 132 and 133, which are supported by their slide-block 138, bracket 140 attached to arm 79 of slide-block 78, the pivot 77 passing through arm 79 to which pivot 77 is attached the vibrating arm 86 which carries the knife-holder or carriage of the channeling-knife 72, so that the work-supports and channeling knife guards 132 and 133 shall be at all times in the same relative position to the channeling-knife 72 and move in and out with it (from C to D and D to C) as may be required in cutting the channel at a greater or less distance from the edge of the sole operated on. By a repetition of these processes the boot or shoe sole is rough-rounded and channeled. When the operation is finished on the sole operated on the machine is stopped in the position described when ready to insert the work. The hand lever 46 is then pressed back (toward D),

raising the feed-clamp 1 and throat-plate and gage 15, releasing the sole, which is then removed from the machine which is now ready for the insertion of the next sole to be operated upon.

We have shown and described the cutting-blade 89 as oscillating or reciprocating about an axis as this construction is deemed by us the best, but it is obvious that a cutting blade reciprocating in a straight line can be used instead, and in such case the mechanism for communicating to it a length of stroke according to the position of the throat-plate would need only such slight modifications as would be apparent to any machinist.

We do not confine ourselves to the use of our self adjusting parallel double work supports and channeling knife guards 132 and 133, as various kinds of work may require different forms of work-supports and channeling knife guards or tables, so we have also shown in Figs. 8, 9 and 10, the grooved slide-block 138 carrying a single work-support and channeling knife guard 146 whose top may be curved or flat as required by different styles of soles, or may have a roller 147, to reduce the friction of the sole of the shoe passed over it. The form shown in Figs. 8, 9 and 10 being suitable for use when women's high arch shoe soles are to be channeled and rough-rounded. This work-support and channeling knife guard 146, which is attached to the arm 140^a of bracket 140 which is attached to and carried by the arm 79 causing the work-support and channeling knife guard 146 to move in and out with the arm 79 and the channeling-knife and its carriage, in the same manner and for the same purposes as the double work supports and channeling knife guards 132 and 133 move in and out with the channeling-knife 72.

The roller 147 may be placed on the front of either the single work support and channeling knife guard 146 (as shown in Figs. 9, 10, and 11) or the double work support and channeling knife guards 132, 133, as readily understood, or such roller may be placed on the back of the work supports next to the channeling knife 72, as may be preferred for different kinds of work operated on. The work-supports and channeling knife guards 132 and 133 and 146 may also be fitted with rollers 147, as shown in Fig. 9, to reduce the friction of the sole passed over them as previously referred to.

What we claim, and desire to secure by Letters Patent, is—

1. In a rough-rounding machine, the eccentric pivoted on the arm 118 and supporting the fulcrum of lever 22, said eccentric carrying an arm connected by a rod and pivot to the lever of the feed-clamp 1 and throat-plate and gage 15, substantially as shown and for the purpose described.

2. In a channeling machine, the self adjusting work support consisting of a bracket attached to the arm 79, a grooved slide hav-

ing two parallel work supports and channeling knife guards pivoted at their lower ends to a balanced lever pivoted to the grooved slide in combination with the channeling knife substantially as and for the purposes shown and described.

3. In a rough-rounding machine, an oscillating-cutting blade with an automatic attachment actuated by a cam or eccentric mechanical device and lever connection, connected with said oscillating cutting-blade and with the feed-clamp throat-plate and gage to operate with the latter as they rise and fall, causing said automatic attachment to operate the oscillating cutting blade to follow the rise and fall of the feed-clamp, throat-plate and gage as and for the purposes shown and described.

4. In a rough-rounding and channeling machine, the eccentric pivoted on the arm 118 and supporting the fulcrum of lever 22, said eccentric carrying an arm connected by a rod and pivot to the lever of the feed-clamp 1, the self adjusting work support and channeling knife guard consisting of a bracket attached to the arm 79, a grooved slide having two parallel work supports and channeling knife guards pivoted to the grooved slide in combination with the channeling knife and the oscillating cutting blade and mechanism to actuate them, substantially as and for the purposes shown and described.

5. In a machine for rough-rounding the edges of the soles of boots and shoes, a work support, a clamp or plate between which and the work support the work shall be held, a cutting blade provided with mechanism for oscillating it and mechanism substantially as described for automatically varying the length of its stroke to correspond to the variations in thickness of the work operated on substantially as and for the purpose described.

6. In a machine for rounding the edges of soles of boots and shoes, a work support, a movable clamp or plate, between which and the work support the work shall be held, a cutting blade provided with mechanism for oscillating it, and connected by mechanism, substantially as shown and described, to the lever which operates the movable clamp, whereby the length of the stroke of the cutting blade shall be increased as the movable clamp is raised, and vice versa, as and for the purpose set forth.

7. In a machine for channeling the outer-soles of boots and shoes while upon the last, a channeling knife mounted on a laterally

movable carriage, and a work support and channeling knife guard connected by mechanism with the said carriage so as to move laterally therewith, whereby the work support and channeling knife guard is kept at a constant distance from the edge of the channeling knife substantially as and for the purpose set forth.

8. In a machine for channeling the outer-soles of boots and shoes, a channeling knife mounted on a laterally movable carriage carried on an arm 79, a work support and channeling knife guard attached to the said arm and movable therewith and with the said carriage, whereby the work support and channeling knife guard is kept at a constant distance from the edge of the channeling knife substantially as shown and for the purpose set forth.

9. In a machine for channeling the outer-soles of boots and shoes, a vibrating channeling knife, the connected work supports and channeling knife guards 132 and 133, one on each side of the channeling knife, movable in a substantially vertical plane, and adapted to move to conform to the position of the work which they support, substantially as and for the purpose set forth.

10. In a machine for channeling the outer-soles of boots and shoes, a vibrating channeling knife, connected work supports and channeling knife guards, 132 and 133, located relatively to the channeling knife as described and adapted to be automatically moved in a substantially vertical plane to conform to the position of the work which they support, and also mechanism for connecting them to and moving them with the carriage upon which the channeling knife is mounted, substantially as and for the purpose set forth.

11. In a channeling machine, a channeling knife, a channeling knife holder, a carriage for said holder, a combined work support and channeling knife guard to support the work and to regulate the depth of channel, a combined lever and mechanism for laterally adjusting the channeling knife holder and carriage, work-support and guard as and for the purpose shown and described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 4th day of June, 1892.

HENRY BRIGGS. [L. S.]
CHRISTIAN DANCEL. [L. S.]

Witnesses:

CYRILLE CARREAU,
WM. POW.