

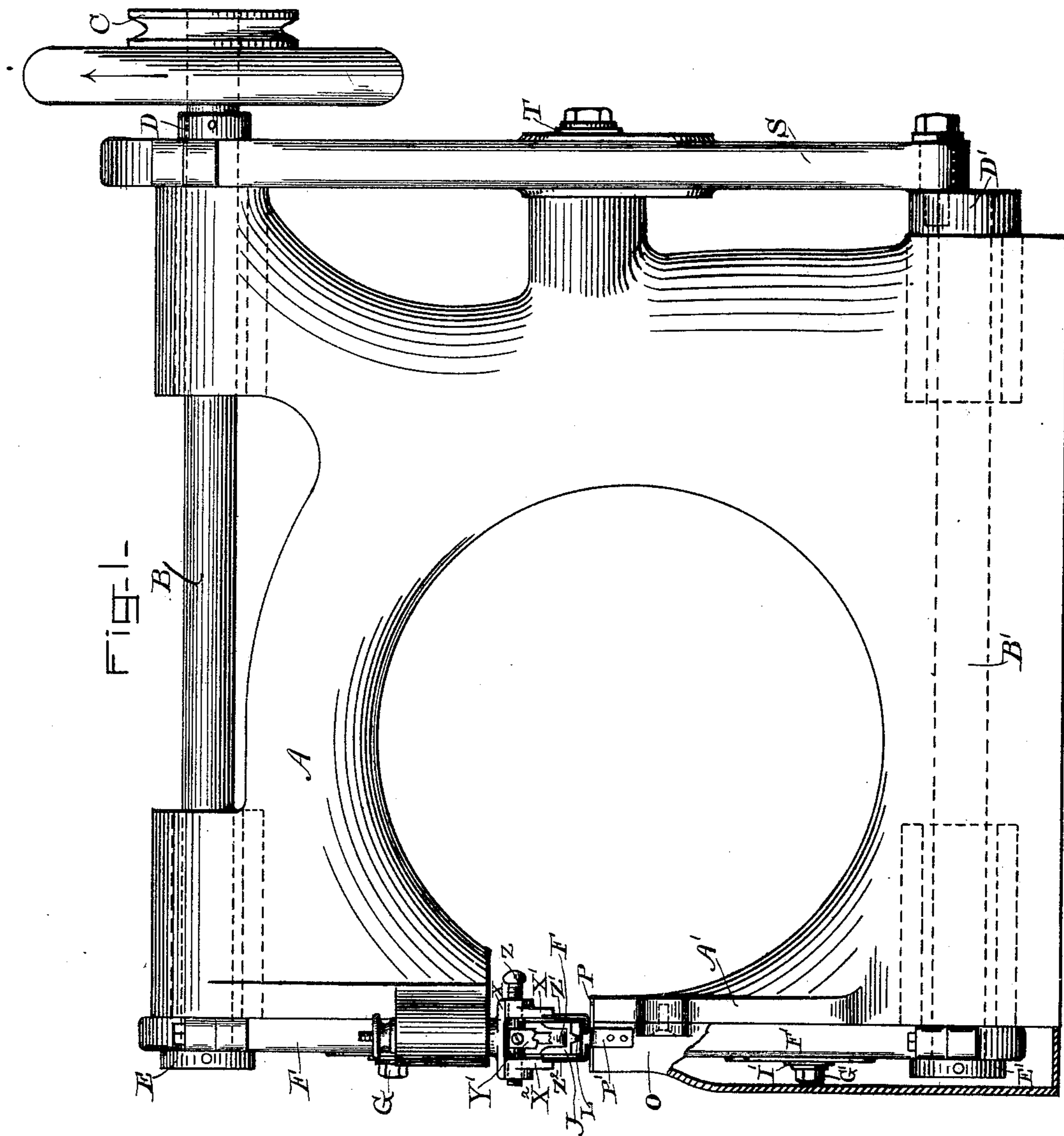
(No Model.)

3 Sheets—Sheet 1.

P. A. & J. COUPAL.  
SEAM FINISHING MACHINE.

No. 410,636.

Patented Sept. 10, 1889.



WITNESSES

*J. L. Adams*  
*J. W. Foster*

INVENTOR

*Peter A. Coupal*  
*Joseph Coupal*  
per *Eugene Humphrey*  
their Atty.

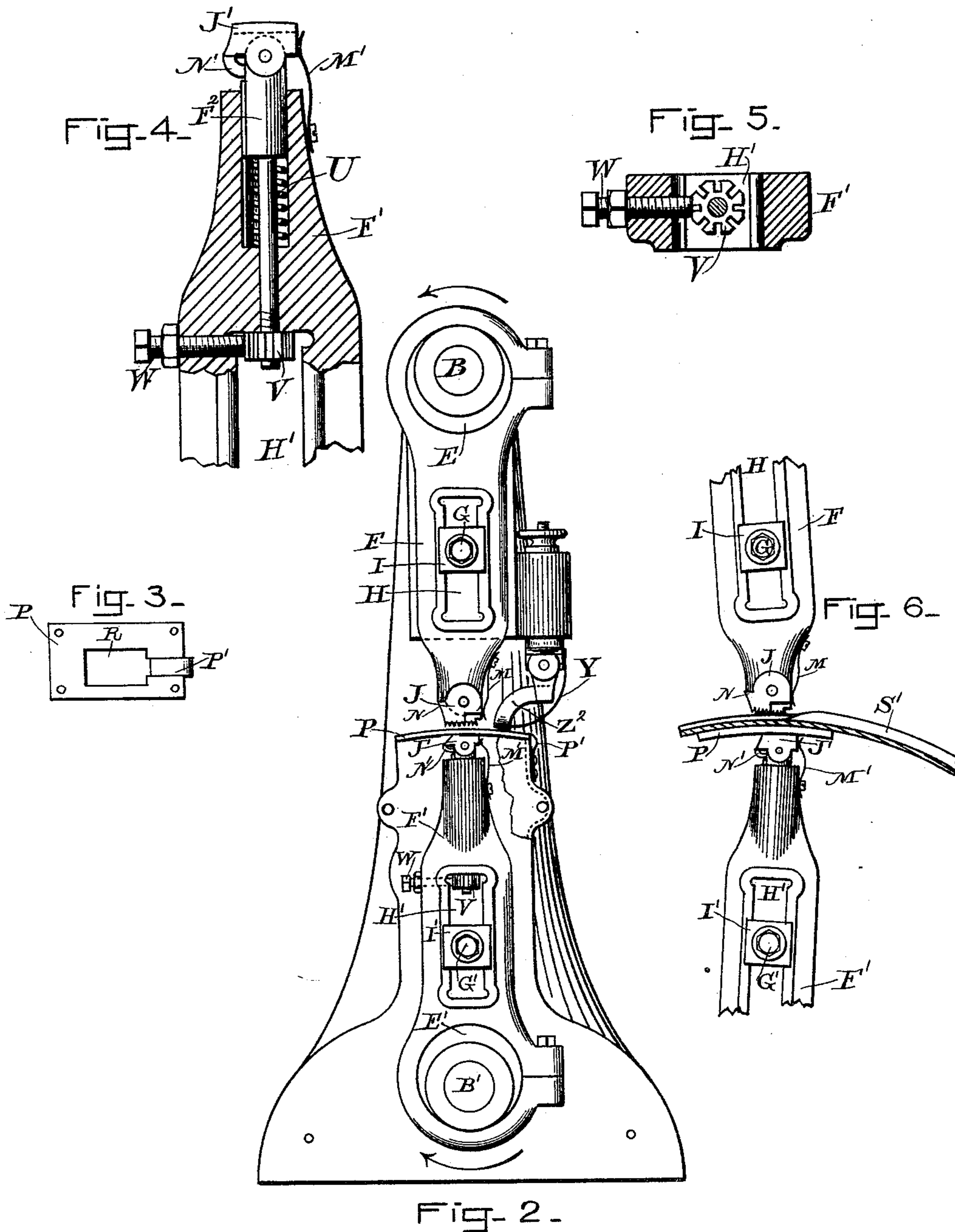
(No Model.)

3 Sheets—Sheet 2.

P. A. & J. COUPAL.  
SEAM FINISHING MACHINE.

No. 410,636.

Patented Sept. 10, 1889.



WITNESSES  
*J. Adams*  
*J. M. Porter*

INVENTOR  
*Peter A. Coupal*  
*Joseph Coupal*  
*per Eugene Humphrey*  
*their atty.*

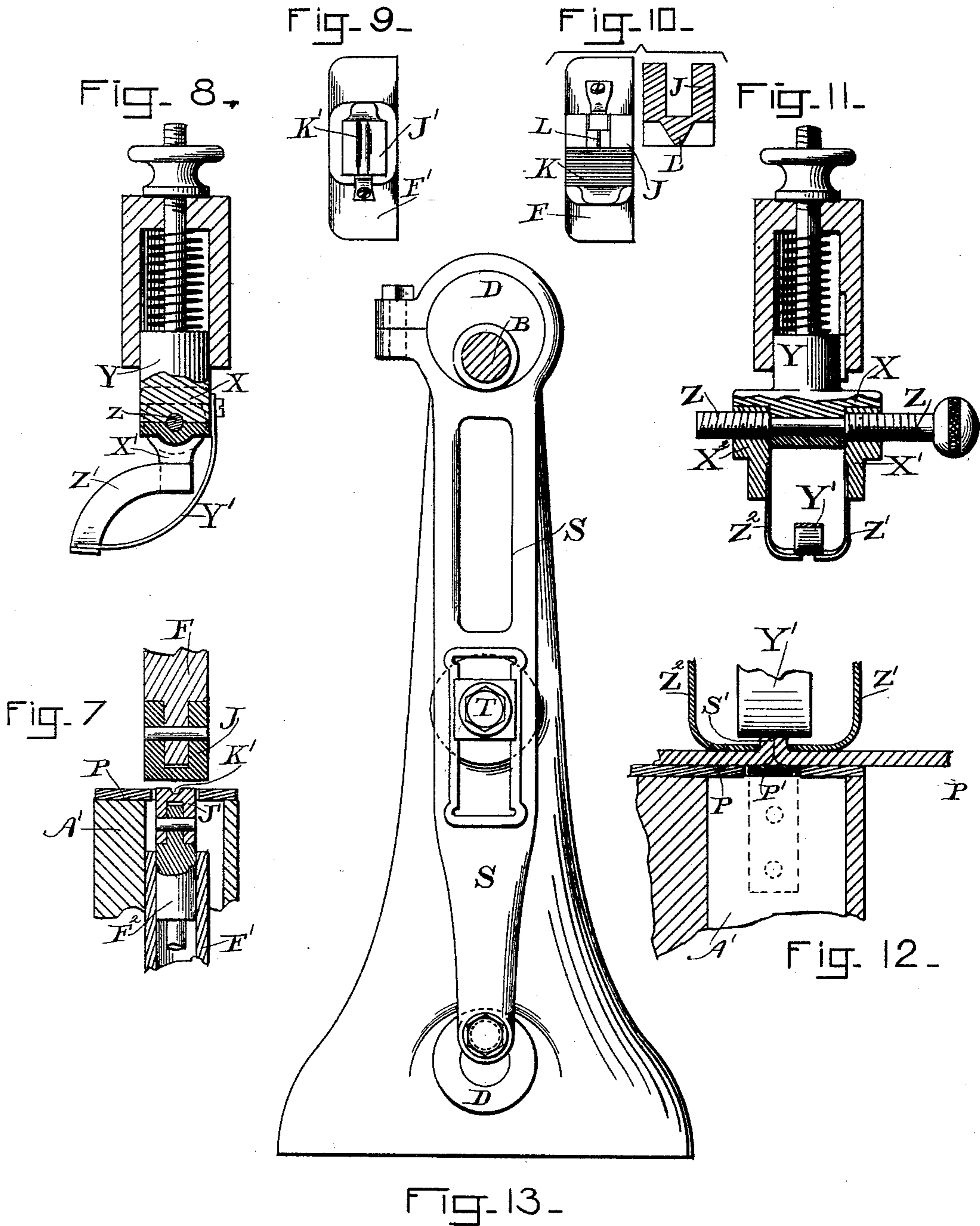
(No Model.)

3 Sheets—Sheet 3.

P. A. & J. COUPAL.  
SEAM FINISHING MACHINE.

No. 410,636.

Patented Sept. 10, 1889.



WITNESSES  
*J. R. Adams*  
*J. M. Dexter*

INVENTOR  
*Peter A. Coupal*  
*Joseph Coupal*  
per *Eugene Humphrey*  
their Atty.

# UNITED STATES PATENT OFFICE.

PETER A. COUPAL, OF BOSTON, AND JOSEPH COUPAL, OF QUINCY, MASSACHUSETTS.

## SEAM-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,636, dated September 10, 1889.

Application filed January 26, 1889. Serial No. 297,713. (No model.)

*To all whom it may concern:*

Be it known that we, PETER A. COUPAL, of Boston; in the county of Suffolk, and JOSEPH COUPAL, of Quincy, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Seam-Finishing Machines, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

Our invention relates to mechanism for finishing the leather seams of boots and shoes; and it consists in certain improvements upon the machine patented by Rollin D. Tucker July 19, 1887, United States Patent No. 366,746, which are hereinafter fully described and specifically claimed.

In the accompanying drawings, Figure 1 is a front side elevation of a machine embodying our invention. Fig. 2 is a front end elevation of the same as viewed from the left of Fig. 1. Figs. 3 to 12, inclusive, are views of enlarged details in plan and section of various detached parts which are embraced in Fig. 2. Fig. 13 is a rear end elevation as viewed from the right of Fig. 1, omitting the driving-wheel.

In the overhanging arm A is journaled a horizontal shaft B. To the rear end of this shaft is attached the driving-wheel C, and near to that is secured upon the shaft an eccentric cam D, as shown in Fig. 13. To the opposite and front end of the shaft is secured another eccentric cam E, as shown in Fig. 2. Upon the latter cam is hung and secured, as shown, the hammer F, which has a vertical reciprocating movement and a rocking motion on stud G when actuated by cam E, a flanged block I being secured on said stud by a nut, as shown, and serving as a bearing in slot H for the hammer to slide linearly on and as a rocking box on the stud G to hold the hammer in place thereon and support its rocking movement.

To the striking end of hammer F is pivotally secured an oscillating foot J, the under side of which is roughened by transverse grooves K and is formed with a V-shaped heel L, all as shown in the plan and section, Fig. 10. In order to keep the tread or lower

side of this foot when raised from the work at right angles to the axis of the hammer, or nearly so, that it may strike fairly upon the edges of the seam, I secure a light spring M to the hammer, so that the free end thereof will bear with elastic force against the rear end of the foot, while its front end is shaped and arranged to come in contact with and rest against a stop N, formed on the hammer, as shown in Figs. 2 and 6.

Upon the top of the work-supporting post A', which extends upward from the bed of the machine, is secured a work-plate P, Fig. 3, having a slot R, through which the under hammer comes in contact with the face of the seam. The under hammer F' is secured to and operated upon the front face of post A' in similar manner and by like means as hammer F is secured to and operated upon the front face of arm A. It is vertically reciprocated upon block I', fitted in its slot H' and rocked therewith on stud G' by the eccentric E', attached to the forward end of shaft B', journaled in the bed of the machine, and on the rear end of which is secured its actuating-crank D'. This crank is connected with cam D, as shown in Fig. 13, by a slotted pitman S, which is fitted to slide upon a block and to rock therewith on a stud T, secured in a hub projecting from the rear of the machine, as shown in Fig. 1.

Hammer F' has pivotally secured to its striking end an oscillating foot J', which coacts with foot J upon the seam when the hammers are in practical operation. The contact-face of foot J' is not roughened like that of foot J, but is smooth and has a central longitudinal depression in hollow K' therein, as shown in the plan thereof, Fig. 9, to protect the edge of the welt in cases where one is stitched in the seam from the effect of the hammering. This foot is not mounted upon the unyielding end of hammer F', but upon the end of a yielding piston F<sup>2</sup>, which is fitted to work in hammer F', as shown clearly in Fig. 4. This hammering-piston rests upon a spring U of the requisite elastic force, seated in the cylindrical chamber formed in hammer F', and through which a smaller rod or smaller part of piston F<sup>2</sup> extends downward and

through an intervening part of the body of the hammer into its slot H', where it is secured against the upward thrust of spring U by a nut V, threaded thereon, as shown. This nut is of such thickness that the several faces thereof, which are grooved to facilitate turning the same on the piston-rod, are deeper or longer than the extent of the vertical movement of the nut, caused by the action of piston F<sup>2</sup>, and the nut is prevented from turning with and getting out of adjustment on the piston-rod by the locking-screw W, threaded in and extending horizontally through the body of hammer F' to and against the face of the nut V, thereby also holding the oscillating foot J' on the upper end of the piston from rotating therewith out of place relatively to foot J. The foot J', secured to this yielding hammer, is also held at right angles to the axis of the hammer when not in contact with the seam in substantially the same manner and for the same purpose as described with reference to foot J, except that the stop N', against which one side of the foot rests by force of the adjusting-spring M', is on the piston instead of upon the body of the hammer. A vertical cross-section through these feet, enlarged, is shown in Fig. 4.

Upon arm A, in a bracket cast thereon, and in front of hammer F, is mounted a yielding presser and guide Y. (Shown in Figs. 1, 2, 8, 11, and 12.) A rod and spring are fitted to play in said bracket, the rod being held up against the force of the spring by a nut seated on the top of the bracket and threaded on the upward-projecting end of the rod, all in a well-known manner, as clearly shown in Figs. 8 and 11. To the lower portion of said presser-rod is secured a T-shaped block X, (shown in Fig. 11,) to which adjustable side pieces X' and X<sup>2</sup> are fitted and upheld by a right-and-left screw Z, upon which said side pieces are threaded, as shown, and which screw is horizontally suspended in said block by its diminished middle portion and so as to rotate therein, as shown. To the side pieces X' and X<sup>2</sup> are attached two guide-fingers Z' and Z<sup>2</sup>. These lateral guides are shown in Fig. 11 at their nearest approach to each other. By turning screw Z in the proper direction these side guides will be thereby moved apart, being prevented from rotating with the screw by the contact of their supporting side pieces with the shoulders of block X, against which they slide. Thus the fingers are adjusted to each other according to the thickness of the seam S' which is to be passed between them, as shown in Fig. 12, which is a section showing the seam in place between the guide-fingers, as when viewed from the left of Fig. 2 while the seam is being moved as from right to left in said figure. Each finger is kept by this mode of adjusting in correct relation to the center of the path in which the work should move, or both equally distant from said center.

A flat spring Y' is attached to the front

side of block X and curves backward, as shown in Figs. 2 and 8, and rests between the fingers Z' and Z<sup>2</sup> and upon the edge of the seam S', as shown in Fig. 12, when the machine is in practical operation. The object of this spring is to prevent the seam from creeping up between the fingers as the work is fed along, which it has a tendency to do unless so held down.

Beneath spring Y' is another smooth flat spring P', which is secured to the side of a cap O, secured to post A', and bent backward over the work-plate, as shown in Figs. 1, 2, 3, and 12, and bears with yielding pressure up against the face side of the seam, the object of this yielding support being to accommodate any unevenness in the stock and to facilitate its progress through the machine without marring or injuring the face of the goods when thus drawn through the guides. When the seam has been pushed into the fingers and beyond spring P', then the hammers come together upon it and its edges are separated and pressed down between the oscillating feet J and J'.

By causing the driving-wheel C to be turned in the proper direction, as indicated by the arrow in Fig. 1, the hammers, as is obvious without a detailed description of the movements of the several parts, will, by means of the connections already described, be moved vertically and rocked on their respective central bearings in opposite directions, so as to coact upon the seam S' through the slot in the work-plate and produce the desired effect. In thus acting upon the seam the feet J and J' strike simultaneously upon opposite sides thereof, the V-shaped heel L entering between the edges S' of the seam and separating the same, so as to present them more favorably to the crushing blow of the rough-faced foot J, acting in conjunction with the yielding blow of the under hammer F', which also co-operates with hammer F in feeding the seam along on the work-plate while it is so gripped between the feet J and J' and leaving it in position to receive the succeeding blows. The oscillating feet upon the hammers in their pressing contact upon the goods while feeding the work along hold the seam with a firm broad grasp, keeping it horizontal and avoiding the tendency of such hammering to stretch and curve or curl the seam, and the heel L upon the upper foot, which parts the edges of the seam, greatly facilitates the hammering down and flattening of the same. Spring Y' between the adjustable guide-fingers accommodates itself to different seams of unequal depths or widths of edges and to any inequalities of depth in the same seam, and the underlying flat spring P', co-operating therewith, holds the edges up between the guide-fingers with a yielding pressure, which insures the proper guidance of the work without marring the face of the same, and also accommodates itself to inequalities of thickness, the whole together constituting a yielding guide

on all sides of the seam, vertically and laterally, so that the work yields to the pull of the hammers more freely and progresses smoothly through the guide, keeping to its proper path or line of movement without deviation.

We claim—

1. In a machine for finishing the seams of boots and shoes, the combination of the work-support P, hammers F and F', eccentrics E and E', studs G and G', a guide for holding and directing the work upon the support to the hammers, and mechanism for rotating the eccentrics, all substantially as specified.

2. In a machine for finishing the seams of boots and shoes, the combination of a work-support, hammer F, provided with an oscillating foot J, hammer F', provided with an oscillating foot J', means for guiding the seam to the hammers, and mechanism for actuating the hammers, all substantially as specified.

3. In a machine for finishing the seams of boots and shoes, the combination of a work-support, hammers F and F', arranged and operated as described, and a guide comprising an under yielding support P', an upper pressure-spring Y', and side fingers Z' and Z<sup>2</sup>, all substantially as and for the purposes specified.

4. In a machine for finishing the seams of boots and shoes, the combination of a work-support, hammers F and F', arranged and operated together as described, guide-fingers

Z' and Z<sup>2</sup>, secured to adjustable side pieces X' and X<sup>2</sup>, and an adjusting-screw Z, for regulating the distance apart of said fingers, all substantially as specified.

5. In a machine for finishing the seams of boots and shoes, the combination of a work-support, mechanism for guiding the seam, hammers F and F', oscillating foot J, attached to hammer F and constructed with a V-shaped heel L and roughened surface K, an adjusting-spring M, and a rest or stop on the hammer, all as and for the purposes specified.

6. In a machine for finishing the seams of boots and shoes, the combination of a work-support, mechanism for guiding the seam, hammers F and F', oscillating foot J, attached to hammer F' and constructed with a groove K', an adjusting-spring M', and a stop N', attached to the yielding piston F<sup>2</sup>, all as and for the purposes specified.

7. In a machine for finishing the seams of boots and shoes, the combination of a work-support, mechanism for guiding the seam, hammer F', mounted upon a yielding piston F<sup>2</sup>, hammer F, the supporting-spring U, the securing-nut V, and locking-screw W, all as and for the purposes specified.

PETER A. COUPAL.  
JOSEPH COUPAL.

Witnesses:

EUGENE HUMPHREY,  
J. Q. ADAMS.