L. O. BOUCHARD.

HAT TRIMMING MACHINE.

APPLICATION FILED JAN. 31, 1918.

1,379,078.

Patented May 24, 1921.

5 SHEETS—SHEET 1.

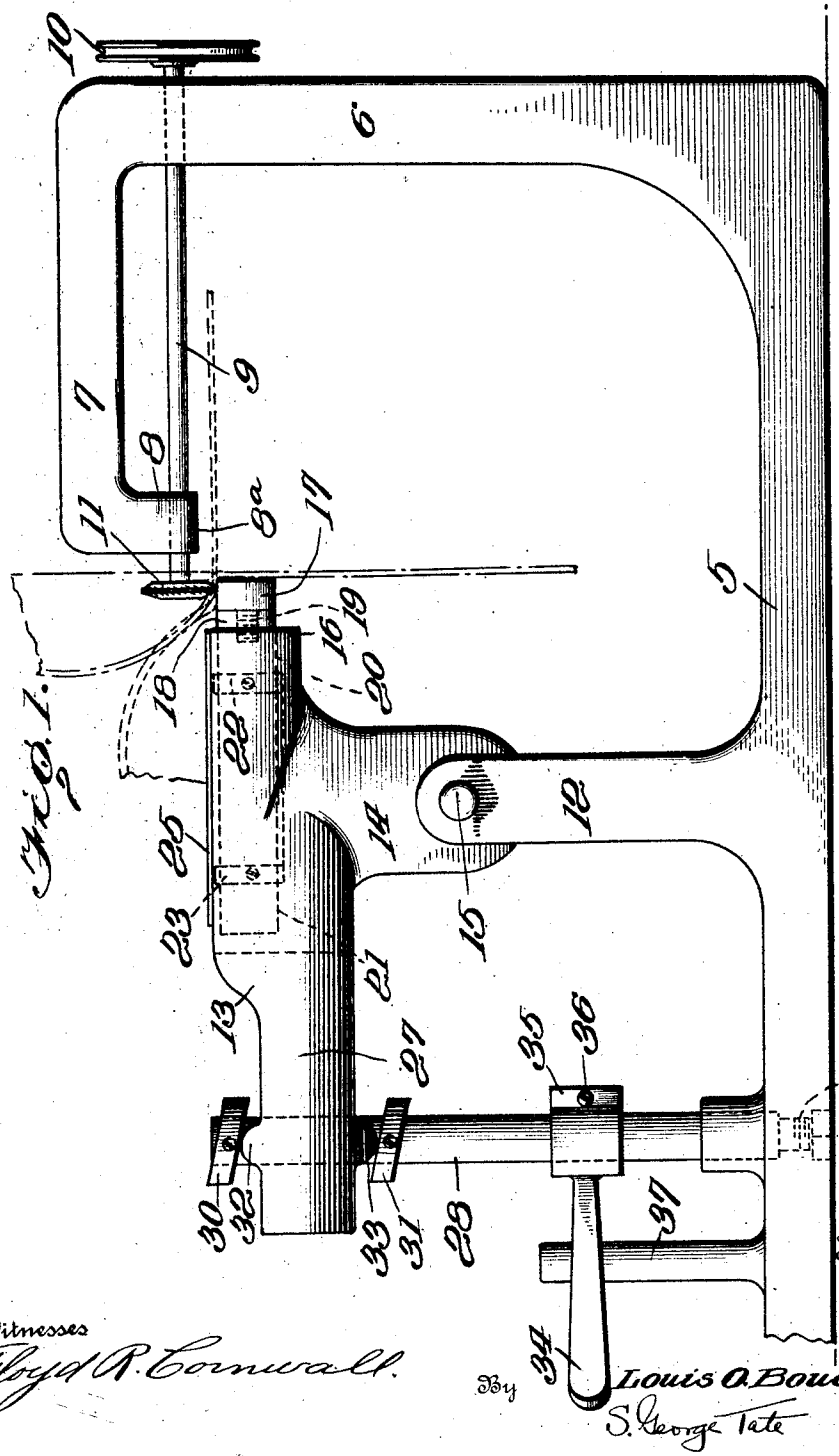


Fig. 1.

Witnesses

Floyd R. Cornwall.

Inventor

By Louis O. Bouchard

S. George Tate

Attorney

L. O. BOUCHARD.

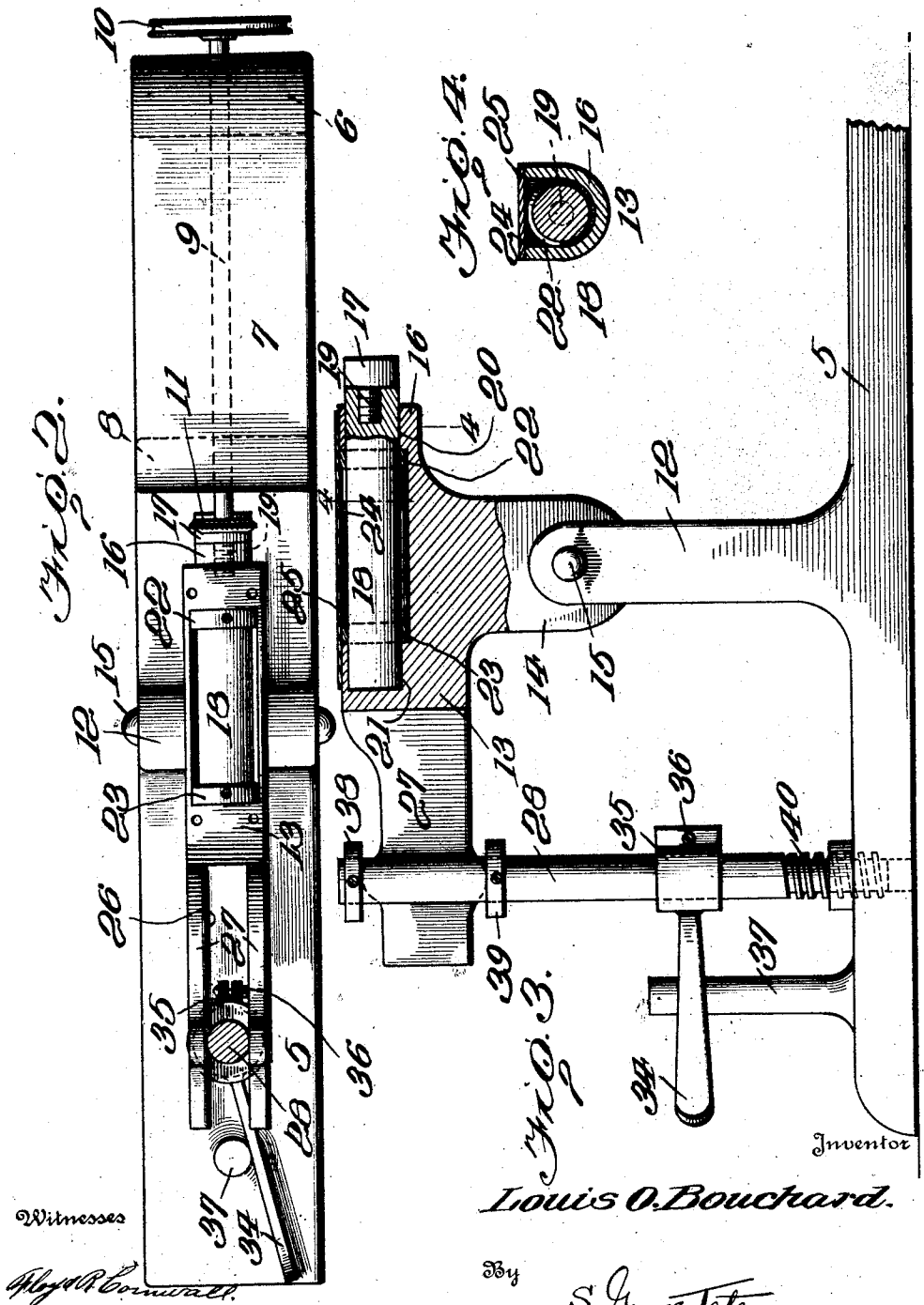
HAT TRIMMING MACHINE.

APPLICATION FILED JAN. 31, 1918.

1,379,078.

Patented May 24, 1921.

5 SHEETS—SHEET 2.



Witnesses

Floyd R. Cornwall

Inventor

Louis O. Bouchard.

By S. George Tate

Attorney

L. O. BOUCHARD.

HAT TRIMMING MACHINE.

APPLICATION FILED JAN. 31, 1918.

1,379,078.

Patented May 24, 1921.

5 SHEETS—SHEET 3.

Fig. 5.

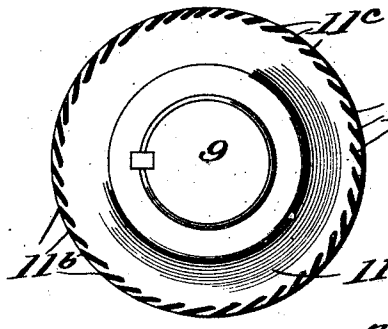


Fig. 6.

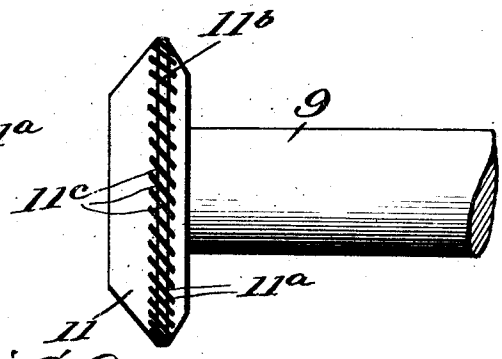


Fig. 8.

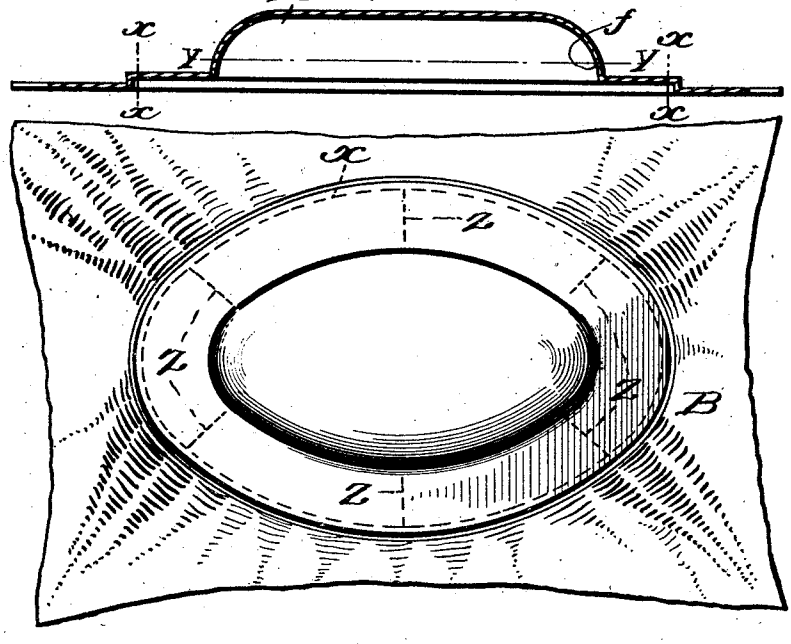


Fig. 7.

Inventor

Louis O. Bouchard.

Witnesses

Floyd R. Cornwall.

By S. George Tate

Attorney

L. O. BOUCHARD.

HAT TRIMMING MACHINE.

APPLICATION FILED JAN. 31, 1918.

1,379,078. **Patented May 24, 1921.**

5 SHEETS—SHEET 4.

Fig. 9.

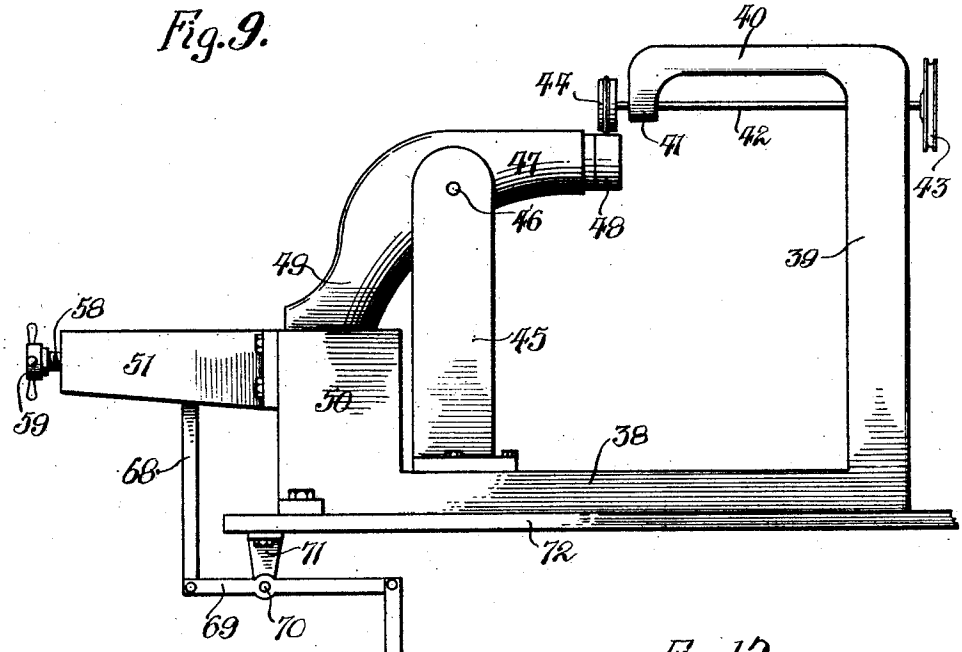
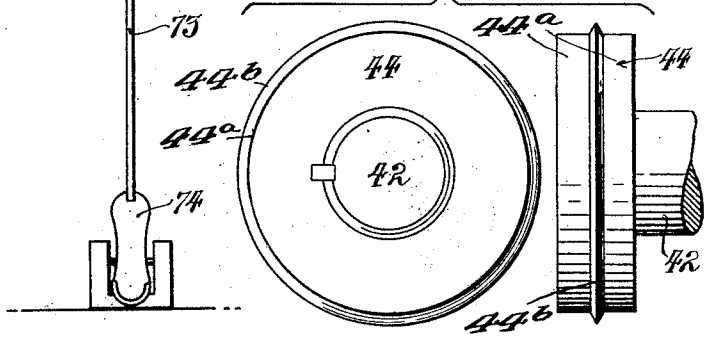


Fig. 12.



L. O. Bouchard, Inventor

Witness

M. D. Tate

By S. George Tate

Attorney

L. O. BOUCHARD.

HAT TRIMMING MACHINE.

APPLICATION FILED JAN. 31, 1918.

1,379,078.

Patented May 24, 1921

5 SHEETS—SHEET 5.

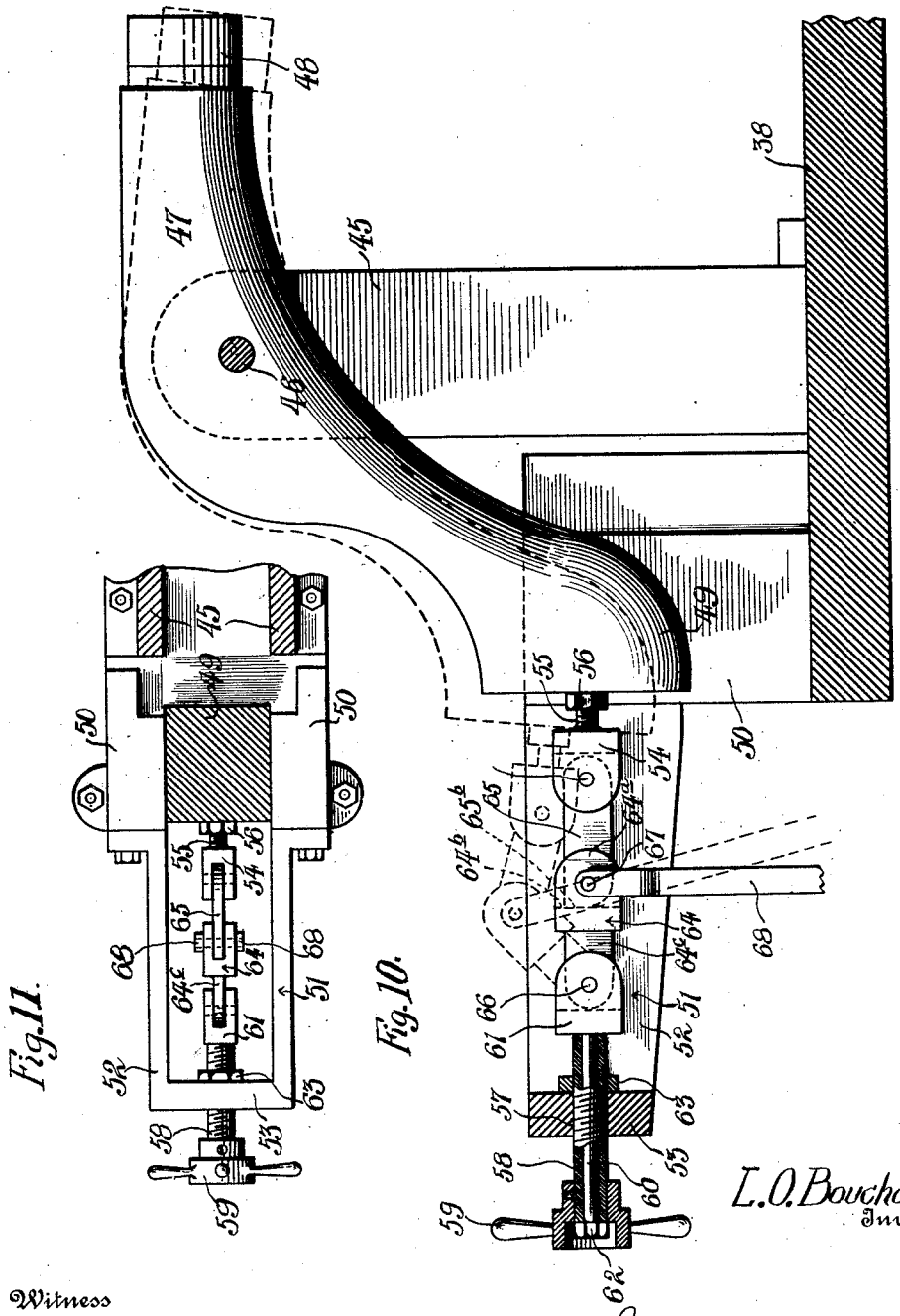


Fig. 11.

Fig. 10.

L. O. Bouchard,
Inventor

Witness
M. D. Tate

By S. George Tate
Attorney

UNITED STATES PATENT OFFICE.

LOUIS ORRILL BOUCHARD, OF PHILADELPHIA, PENNSYLVANIA.

HAT-TRIMMING MACHINE.

1,379,078. Specification of Letters Patent. **Patented May 24, 1921.**

Application filed January 31, 1918. Serial No. 214,775.

To all whom it may concern:

Be it known that I, LOUIS O. BOUCHARD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hat-Trimming Machines, of which the following is a specification.

This invention relates to new and useful improvements in hat rounding and slashing machines for first trimming from a previously pressed blank the brim of the hat and an attached flange, to which the crown is to be later secured, and for later slashing said brim to permit the proper shaping thereof.

The principal object of the invention is to provide a machine for the purpose set forth whereby the blank may be supported in a horizontal plane to trim said blank to form the outer edge of the brim, and whereby the blank may be also supported in a vertical plane to trim said blank to form the flange extending from the inner edge of the brim, and without interfering with any of the operative parts of the machine during either of said operations.

Another object of the invention is to provide a device for supporting the blank while being trimmed, and a trimming device cooperating therewith, one of said devices being movable in a vertical plane relative to the other device to permit blanks being readily inserted and removed.

Another object of the invention is to provide a pivotally mounted work support and manually controlled devices connected thereto whereby the support may be rocked toward and from the trimming element, said devices including adjustable means for limiting the movement of the work support toward the trimming element whereby the working position of said support may be varied to properly sever fabrics of different qualities and thicknesses, as well as preventing the support from striking and injuring the trimming element when said support is being moved to its operative position.

A further object of the invention is to provide a treadle controlled mechanism for shifting the work support to and from the trimming element, whereby a blank may be positioned or removed during the running of the machine and without necessitating either hand of the operator being withdrawn from the blank.

A further object of the invention is to provide a rotary trimming element which is provided with a combined work-cutting and work-feeding surface, whereby said element will feed the material and simultaneously sever the same.

These and other objects will in part be obvious, and will be hereinafter more fully disclosed.

In the drawings, which show by way of illustration, one embodiment of my invention,

Figure 1 is a front elevation of one form of my invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a front elevation but partly in section, showing a modified form for shifting the work supporting device;

Fig. 4 is a detail cross section taken on the line 4—4 of Fig. 3;

Fig. 5 is an enlarged side elevation of one form of combined work feeding and trimming element;

Fig. 6 is an edge view thereof;

Fig. 7 is a plan view of one of the hat forms which my machine is adapted to trim;

Fig. 8 is a longitudinal sectional view thereof;

Fig. 9 is a front elevation of the machine shown in Fig. 1, but equipped with my improved treadle controlled mechanism;

Fig. 10 is an enlarged sectional view showing in full lines the parts in their normal or operative position, and in dotted lines, the parts in their abnormal or inoperative position;

Fig. 11 is a detail top plan view of the toggle mechanism shown in Fig. 11, and

Fig. 12 is a view showing front and edge elevations of another form of combined work feed and trimming element.

One form of my improved hat rounding machine includes a supporting frame which comprises a bed plate 5, from one end of which rises a standard 6, supporting an inwardly extending over-hanging arm 7 at its upper end. Depending from the inner end of the over-hanging arm 7 is a short arm 8, in which is journaled one end of a shaft 9, the other end of said shaft being journaled in the upper end of the standard 6. The

shaft 9 has one end extending through the standard 6 and mounted on this projecting end is a belt pulley 10, which may be driven from any suitable source of power. The other end of the shaft 9 extends beyond the depending arm 8, and fixed on this projecting end of the shaft is a circular trimming element 11.

Also extending upwardly from the bed plate 5 is a post 12. This post is located in a vertical plane on the side of the short arm 8 opposite the standard 6, and is located in a vertical plane which is spaced a considerable distance from a vertical plane extending through said short arm. In other words, the short arm 8 is disposed intermediate and spaced from the standard 6 and post 12.

This form of my invention furthermore comprises a device for supporting the work to be trimmed and this device comprises a substantially horizontally disposed work support 13, and a downwardly extending lug 14, the latter being pivoted to the upper end of the post 12 by a pin 15. The upper end of the post 12 terminates at a point considerably below a horizontal plane coincident with the axis of the shaft 9, and the work supporting device 13, which is pivoted on said post is wholly disposed below said shaft 9. One end 16 of the work support projects beyond the post 12 toward the circular trimming knife 11, but terminates in spaced relation thereto.

A work supporting roller 17 is secured to the outer end of a shaft 18 by a screw or other suitable fastening means. This shaft 18 is journaled in spaced bearings 20 and 21 formed in the work support 13. Secured to the shaft 18 are spaced collars 22 and 23 which respectively bear against the bearings 20 and 21 to prevent any longitudinal movement of the shaft 18, but permitting axial movement thereof. The roller 17 is, therefore, disposed under the circular trimming knife 11 and in spaced relation to the lower edge 8^a of the short arm 8. The top of the work support 13 is flat and the shaft 18 is located adjacent said top surface. In order to assemble the shaft in the work support, the latter is provided with an opening 24, which communicates with the upper surface of the work support and is of a sufficient size to permit the insertion and removal of the collars 22 and 23. The opening 24 is covered by a flat plate 25.

The end of the work support opposite the roller 17 extends away from the post 12 and is formed with an inwardly extending longitudinal slot 26, which forms consequent spaced arms 27—27.

A vertically extending rod 28 has its lower end suitably journaled in the bed plate 5 as indicated at 29, and this rod extends upwardly into the slot 26 of the work support. Adjustably secured to the rod above and below the arms 27 are upper and lower cam collars 30 and 31 respectively, said collars being secured to the rod by screws or other suitable means. The arms 27 are respectively provided with upwardly and downwardly extending curved projections 32 and 33, and these projections have sliding engagements with the cam collars 30 and 31 so as to prevent any binding between the parts when the rod 28 is oscillated. A hand lever 34 is provided at one end with a split clamp 35 which encircles the rod 28 and is fixedly clamped thereto by a clamping screw 36. An abutment 37 for the hand lever 34 is carried by the bed plate 5 and serves to limit the movement of the hand lever in one direction.

The circular trimming element 11 is formed with a peripheral work-engaging edge, and this edge is provided with a series of slots 11^a, which are inclined relative to the plane of said element. These slots are disposed in over-lapping relation and form a resultant series of teeth 11^b. The juncture between each wall of each slot 11^a and the outer surface of the teeth 11^b form cutting edges, and inasmuch as these slots are arranged in over-lapping relation, the cutting surface of each pair of slots is similarly disposed.

As previously stated, my invention is particularly adapted for trimming from a previously pressed blank the brim of a hat, and an attached flange, and later, slashing said brim to permit the proper shaping thereof. These blanks are formed from various materials and are pressed into the shape shown in Figs. 7 and 8. The blank B is placed on the work support, as indicated in dotted lines of Fig. 1, so as to trim along the lines X—X (Fig. 8) and thereby form the outer edge of the hat brim B. In order to insert the blank between the trimming knife 11 and the supporting roller 17, the operator moves the hand lever 34 forwardly and, as a result, the rod 28 is oscillated and the cam collars 30 and 31 thereon, which coöperate with the projections 32 and 33, swing the work support on its pivot 15 so as to move the roller or work supporting device downwardly in a vertical plane and away from the trimming knife 11. After the blank has been so inserted, the operator then returns the hand lever 34 to its normal position against the abutment 37. By adjusting the hand lever 34 on the rod 28 to a certain radial point, I have thereby provided adjustable means for limiting the upward movement of the work support whereby the working position of said support relative to the trimming element may be varied to properly sever fabrics of different qualities and thicknesses, as well as preventing the support from striking and injuring the trimming

element when said support is being moved to its operative position. After the blank has been trimmed along the lines X—X, the hand lever 34 is again moved to create a clearance between the roller 17 and the trimmer knife 11. The blank B is then positioned in a vertical plane as indicated in dotted lines in Fig. 1 and the hand lever 34 returned to its normal position. The blank will then be trimmed on the line Y—Y, thus leaving a flange *f* extending from the inner edge of the hat brim, as clearly shown in Fig. 8. The trimmed hat brim is then slashed in several places to permit the proper shaping thereof. This slashing operation consists in cutting the brim in several places, from the outer edge inwardly toward the attaching flange, but terminating short of said flange. The brim is held in a horizontal plane, partly over the work support and partly under the overhanging arm, and fed and cut by the combined work-feeding and trimming element. Inasmuch as the work is positively fed, it is necessary, when the inner end of the cut *z* (Fig. 7) has been reached, to quickly render the feeding and cutting action ineffective and thereby prevent the flange of the brim from being severed. For this purpose, the quick-acting hand controlled lever 34 is employed.

Instead of employing the cam collars 30 and 31, I may use ordinary collars 38 and 39, as shown in Fig. 3. In this case the lower end of the rod 28 will be formed with a quick acting thread 40, which has threaded engagement with the base plate 5.

It will also be noted that the trimming element 11, by having the cutting edges disposed in over-lapping relation, will cleanly cut all strands of fiber. Inasmuch as the peripheral surface of the trimming element is flat, the cutting of the material is effected more by abrasion than by a direct cutting action.

From the foregoing it will be obvious that I have provided a trimmer supporting shaft and a roller supporting shaft, the latter being in a plane below the former, and that I have pivotally supported one of these shafts, and have provided manually controlled means for swinging the pivoted shaft to form a clearance between the trimmer and the roller for the insertion of the material to be trimmed. It will also be noted that by the construction shown, I have provided a clearance under the roller, and also above the roller, to permit the blank being disposed in a vertical plane without interfering with any of the operating parts when the blank is being trimmed to form the flange to which the crown of the hat is to be secured.

In Figs. 9 to 12 inclusive I have shown another form of my invention, which, however, includes a base 38, and upright 39 which terminates in an over-hanging arm 40. The overhanging arm 40 has a depending portion 41, in which one end of a main shaft 42 is journaled, the other end of said shaft being journaled in the upright 39. This shaft carries a driving pulley 43 at its outer end, and carries at its inner end a combined trimming and feeding wheel 44. As shown in Figs. 9 to 12 inclusive, this device includes spaced peripheral work feeding surfaces 44^a—44^a and a circular work cutting rib 44^b which is arranged between said work feeding surfaces and projects outwardly therebeyond. By means of this device, the work is clamped and fed on each side of the trimming or cutting rib. Supported on the base 38 is a standard 45, which is located in a position similar to the standard 12 shown in Figs. 1 and 3.

Pivotally supported on a transverse pivot 46, at the upper end of the standard 45, is a work support 47 which carries a work supporting roller 48. The work support 47 is provided with a downwardly extending arm 49, and consequently this support is substantially L-shaped in construction and forms a rocking frame which is pivoted intermediate its ends. The depending arm 49 projects downwardly between spaced guides 50—50 which are secured to the base 38. Secured to the outer edge of the guides 50 is a laterally extended and substantially U-shaped supporting frame 51 which includes spaced walls 52—52 and a connecting portion 53.

Disposed within this U-shaped frame is a toggle mechanism which is connected to the arm 49 and is operated by a treadle to rock the work support 47 on its fulcrum 46 and thereby shift the roller 48 to or from the trimmer 44. This toggle mechanism includes a pivot block 54 which is fixedly connected to the lower end of the depending arm 49, by a screw shank 55 and nut 56. Threaded into an opening 57 in the connecting portion 53 is a sleeve 58, and fixedly connected to the outer end of this sleeve is a hand wheel 59. Disposed within the sleeve 58 is a shank 60 of a pivot block 61 and threaded on to the outer end of the shank 60 is a nut 62. The pivot block 61 bears against the inner end of the sleeve 58, and the nut 62 bears against the outer end of said sleeve 58. As a result of the sleeve 58 having threaded engagement with the connecting portion 53, the pivot block 61 is held against movement toward or from the pivot block 54. This movement is further prevented by a nut 63. The pivot block 61 may, however, be shifted toward or from the pivot block 54 by first loosening the nuts 62 and 63 and rotating the sleeve 58 by the hand wheel 59.

A pivot block 64 is provided with a

shank 64^c, which is pivotally connected as at 66 to the pivot block 61. The pivot block 64 is provided with spaced ears 64^a and a straight inner end wall 64^b. A link 65 is pivotally connected at one end, as at 68, to the pivot block 54, and at its other end by a pin 67 to the ear 64^a of the pivot block 64.

The last mentioned end of the link 65 is provided with a nose 65^b, which is adapted to abut the inner end wall 64^b of the block 64, and thereby limit the downward movement of the pivot pin 67. The under edge of this link 65 is, however, cut away to permit the toggle to be shifted to the dotted line position shown in Fig. 10. A link 68 is connected at its upper end to the pivot pin 67, and at its lower end to one end of a horizontally disposed lever 69, said lever being pivoted intermediate its ends, as at 70, to a bracket 71 suitably secured to a table 72, which supports the machine. Pivotally connected to the other end of the lever 69 is a link 73, and connected to the lower end of this link 73 is a foot treadle 74.

It will thus be noted that when the treadle 74 is depressed, the link 68 will be moved upwardly, and this movement will shift the toggle to the dotted line position shown in Fig. 10, thereby moving the work supporting roller 48 downwardly from the trimmer 44, and thereby permitting the handling of the work by both hands of the operator, and without stopping the machine. When the operator desires to return the roller 48 to its operative position, the heel of the treadle is depressed, and consequently the link 68 is moved downwardly to the full line position shown in Fig. 8. This full line position, or operative position, of the roller 48 may be varied in its relation to the trimmer 44 by shifting the pivot block 61 toward or from the pivot block 54, as previously described. By this mechanism, the roller 48 may be minutely set in its operative position and in its relation to the trimmer 44, whereby the latter will function effectively.

Having thus described my invention, what I claim is:

1. In a hat trimming machine, the combination with a frame comprising a base, a post fixed to said base, a standard spaced from said post and supported by said base, and an overhanging arm disposed in a plane above said post and projecting from the upper end of said standard toward said post, and terminating at a point intermediate said post and standard, of a horizontally disposed shaft supported by said standard and having one end projecting toward said post and beyond the end of the overhanging arm, a circular trimming knife fixed to said projecting end of the shaft, a horizontally disposed shaft carried by said post and disposed in a plane below said first mentioned shaft, a work supporting roller carried by said second mentioned shaft and disposed under said trimming knife, one of said shafts being pivotally supported, and manually controlled means for swinging said pivoted shaft to form a clearance between the trimming knife and the work supporting roller.

2. In a hat trimming machine, the combination with a supporting frame, of a rotary trimming device supported thereon, a work supporting device carried by said frame and disposed under said trimming device, said work supporting device being pivoted intermediate its ends to the frame for movements in a vertical plane, and means connected to one end of said work supporting device for swinging the same toward and from said trimming device.

3. In a hat trimming machine, the combination with a frame comprising a base, a post fixed to said base, a standard spaced from said post and supported by said base, and a trimmer supported by said standard and disposed intermediate the post and standard and in a plane above said post, of a work supporting device pivotally mounted intermediate its ends upon the upper end of said post, a work supporting roller carried by one end of said device and disposed underneath said trimmer, and means coöperating with the other end of said device for adjusting the latter about its pivot, whereby said work supporting roller may be moved toward and away from said trimmer.

4. In a hat trimming machine, the combination with a frame, including a base and a post fixed thereto, of a work support pivotally mounted intermediate its ends on the upper end of said post, a trimming device supported by the base and disposed above one end of said work support, and controlling means coöperating with the other end of said work support for adjusting the latter about its pivot, whereby the working position of the first mentioned end of said work support relative to said trimming device may be varied.

5. In a hat trimming machine, the combination with a frame comprising a base, a post fixed to said base, a standard spaced from said post and supported by said base, and an overhanging arm disposed in a plane above said post and projecting from the upper end of said standard toward said post, and terminating at a point intermediate said post and standard, of a trimmer mounted to operate at the inner end of said overhanging arm, a work support pivoted to said post and having one end disposed under said trimmer and spaced from said overhanging arm, said trimmer and work support being relatively movable in a general vertical direction to form a clearance for the insertion of the work to be trimmed, and treadle controlled means coöperating with

the other end of said work support for swinging said work support about its pivot to permit the insertion and removal of work between the trimmer and the first mentioned end of said work support.

6. In a hat trimming machine, the combination with a supporting frame, of a rotary trimming device supported thereon, a work supporting device carried by said frame and disposed under said trimming device, said work supporting device being pivoted intermediate its ends to the frame for movements in a vertical plane, a toggle connection between the frame and one end of said work supporting device, and means connected to said toggle connection for swinging said work support toward and from said trimming device.

7. In a hat trimming machine, the combination with a supporting frame, of a rotary trimming device supported thereon, a work supporting device carried by said frame and disposed under said trimming device, said work supporting device being pivoted intermediate its ends to the frame for movements in a vertical plane, a toggle connection between the frame and one end of said work supporting device, means to adjust said toggle connection to vary the working position of the work supporting device relative to the trimming device, and means connected to said toggle connection for swinging said work support toward and from said trimming device.

8. In a hat trimming machine, the combination with a frame comprising a base, a post fixed to said base, a standard spaced from said post and supported by said base, and an overhanging arm disposed in a plane above said post and projecting from the upper end of said standard toward said post, and terminating at a point intermediate said post and standard, of a trimmer mounted to operate at the inner end of said overhanging arm, a work support carried by said post and disposed under said trimmer and spaced from said overhanging arm, said trimmer and work support being relatively movable in a general vertical direction to form a clearance for the insertion of the work to be trimmed, a toggle connection between the frame and the other end of said work support, and treadle controlled means connected with said toggle connection for swinging said work support about its pivot to permit the insertion and removal of work between the trimmer and the first mentioned end of said work support.

In testimony whereof I affix my signature in the presence of two witnesses.

LOUIS ORRILL BOUCHARD.

Witnesses:

HANS WENIGER,

ALEX. WALTER.