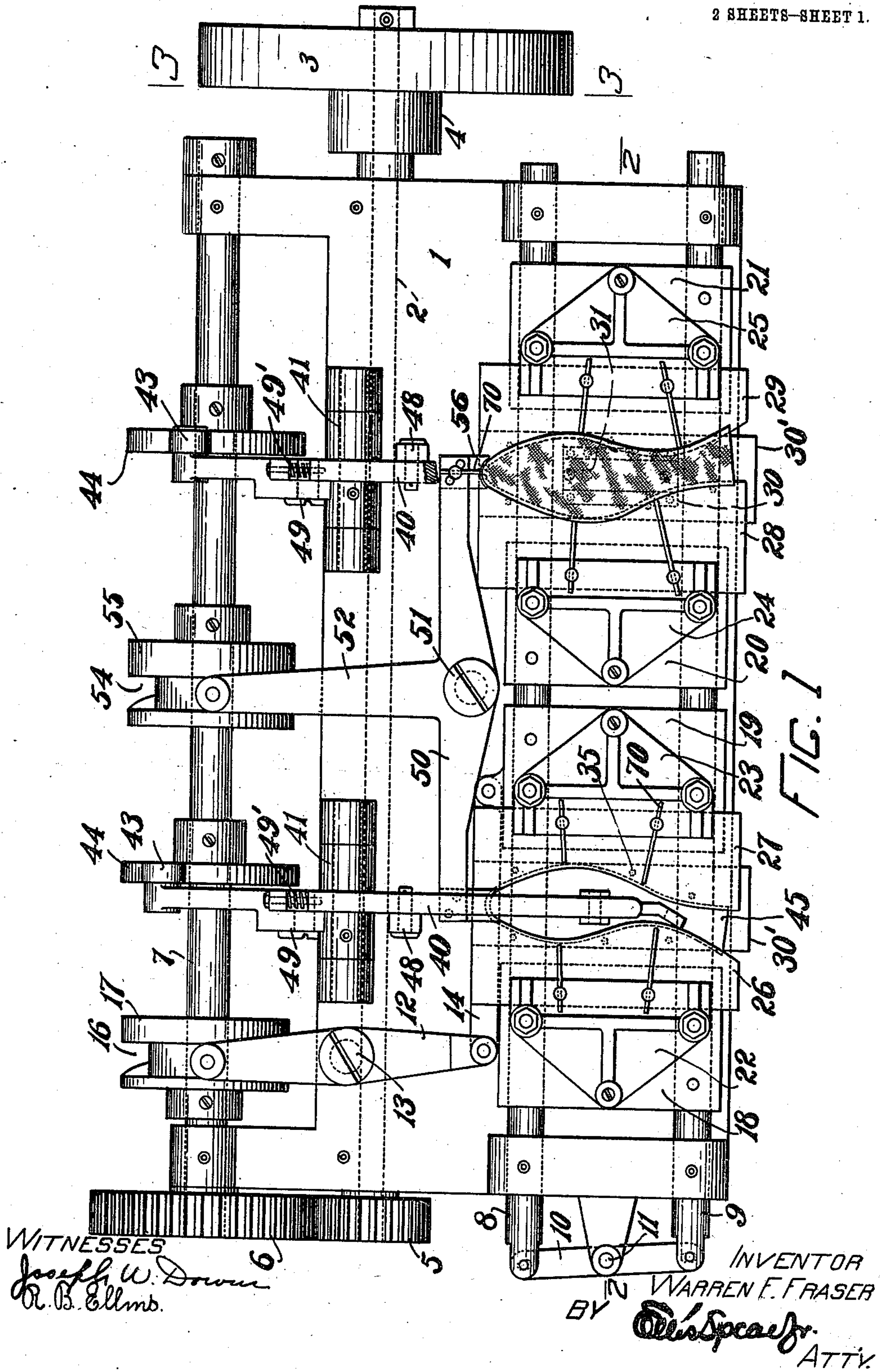


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APPLICATION FILED AUG. 5, 1910.

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2 SHEETS—SHEET 1.

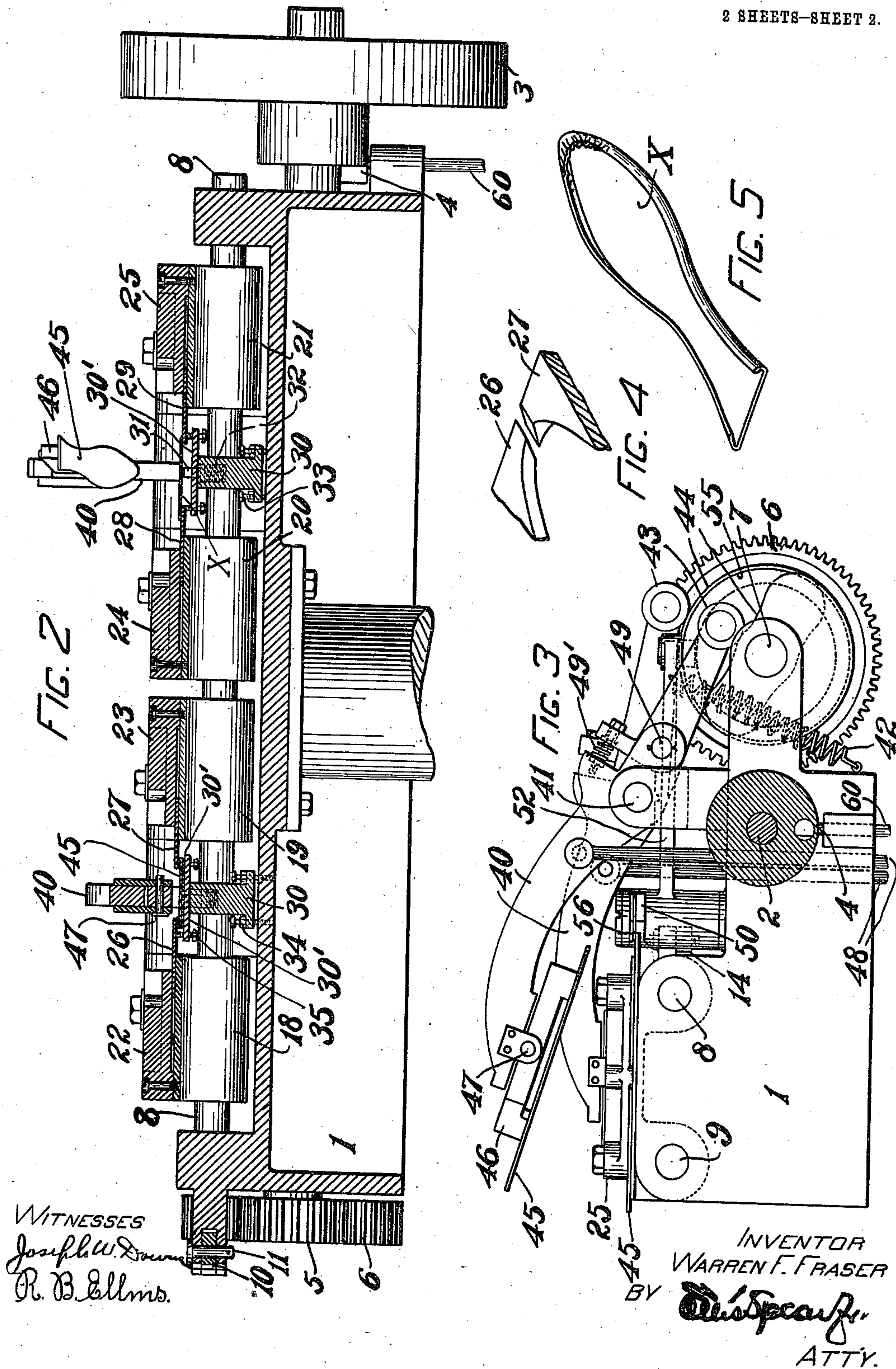


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MACHINE FOR FORMING FASTENING MEMBERS FOR WELT-SHOES.

989,904.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed August 5, 1910. Serial No. 575,659.

To all whom it may concern:

Be it known that I, WARREN F. FRASER, a subject of His Majesty King George the Fifth, in the right of his Dominion of Canada, residing at Dorchester, county of Suffolk, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Forming Fastening Members for Welt-Shoes, of which the following is a specification.

This invention relates to machines for forming and molding the textile fastening members for welt shoes, such as is set forth in the application of W. A. Turner, Ser. No. 557,386. These fastening members are composed of a pair of canvas sole blanks united by a rubber cement and it is desired to turn up the edges of the members into a flange with a fold along the line in which the stitching is to be laid when the upper and the welt strip are united thereto. Various difficulties have been encountered in the formation of such a member, one of the principal being the necessity of securing a permanent fold with the flange slightly inclined inwardly. To the end, therefore, of producing these articles in the desired form and in a manner consistent with the commercial usages of shoe manufacture I have devised my present invention. In this I have produced mechanisms which will receive and form the blanks with the permanent fold desired and have so arranged the machine that its action will be continuous.

As illustrative of my invention I have set forth an embodiment which I find well adapted to practical use and this embodiment I have more fully described in the specification which follows and have illustrated the same in the drawings which form a part thereof.

Throughout specification and drawings like reference numerals are employed to indicate corresponding parts and in the drawings:—

Figure 1 is a general plan view of my machine, Fig. 2 is a slightly modified section on the line 2—2, Fig. 1, Fig. 3 is a side view of the machine with the pulley cut away on the line 3—3, Fig. 1, Fig. 4 is a detail of the toe portion of the folding slides, and Fig. 5 is a view of the folding fastening member.

Within a frame 1 is journaled a power shaft 2 turned by a pulley 3 through a

clutch 4. The shaft 2 is geared through 5 and 6 so as to turn the shaft 7 at half its own rate of speed.

8 and 9 are a pair of reciprocating rods transversely disposed in the frame and connected by a link 10 which is pivoted at its middle 11, so that the reciprocating motion of these rods will be reversed. The rods are rocked by a lever 12 pivoted at 13 and connected by a link 14 to the rod 8. At its opposite end the lever 12 has a roller 15 working in a slot 16 of a cam 17.

18, 19, 20 and 21 indicate folder carrying slides which embrace the reciprocating rods 8 and 9. The slides 18 and 20 are fast on the rod 8 and the slides 19 and 21 are similarly made fast on the rod 9, so that these rods are reciprocated in opposite directions, the slides 18 and 19 and 20 and 21 being made to approach each other or recede from each other in pairs.

On each of the slides 18, 19, 20 and 21 are mounted adjustable blade supports 22, 23, 24 and 25. Of these the supports 22 and 23 are oppositely faced and the supports 24 and 25 are likewise opposed. In each one of these holders is held a turning blade or plate indicated as 26, 27, 28 and 29. Of these the pair 26 and 27 form the opposite contours of a sole edge and the pair 28 and 29 are similarly oppositely contoured. Between these blades and just below their level is set a supporting post 30 which is recessed at its upper end and within the recess is mounted a plunger 31 backed by a spring 32. This plunger tends to yieldingly support the center of the blank when placed upon it as in its normal position it rises just to the level of the slides 26 to 29 inclusive. At its lower end the post 30 is flanged and is provided with a set of adjusting screws of which the screws 33 rest upon the bed plate of the machine (see right of Fig. 2), while the screws 34 (see left of Fig. 2) are tapped into the bed plate of the frame. The post 30 may, therefore, be adjusted up or down to secure its proper degree of elevation. Near its upper end the post carries a flange 30' through which screws 35 project to form points for supporting the slides 29 when in their forward position.

The arms 40, pivoted at 41, are normally held down by springs 42 which hold the roller 43 on the rear end of the arm against the cam 44 on the shaft 7. The forward

end of the arm, therefore, carrying the folding form 45 is normally held elevated. The form 45 is mounted on a block 46 which is pivoted at 47 to the arm 40, permitting it to assume a true horizontal position when it encounters the work. The arm 40 is rocked by the cam 44 once on each rotation of the shaft 7, but, it may be depressed by a downward pull on the rods 48 which may be connected to a treadle or any other form of suitable device which may be controlled by the operative in adjusting the machine. The arm 40 is preferably divided just in the rear of its pivot 41 and pivoted to itself as at 49. The spring 49' is interposed at its point between a shoulder on each so that the lever may yield upon itself in case of the encountering of an obstacle. The lever 50 is fulcrumed at 51 and rocked by an arm 52 at the end of which is a roller 53 working in a slot 54 in a cam 55. On each end the lever 50 is pivoted with an adjustable toe piece 56 which is adapted to crumple or crimp the toe tip of the blank as it is folded up. At their toe ends the slides 26, 27 28 and 29 are oppositely beveled so as to slightly overlap, as indicated in Fig. 4.

The operation of my machine is, therefore, as follows:—Power is applied at the pulley 3 and when the machine is to be started the clutch 4 is engaged by the operating lever 60. A blank has been placed on each one of the pairs of slides 26, 27, 28 and 29, being properly held thereon by the adjustable gages 70. On the right of Fig. 2 of the drawings a blank is indicated as thus positioned. As the folding form 45 advances it first meets the blank, which I have indicated as X, and which I have shown in position on the right of Fig. 1. The form 45 presses the blank down against the yielding support 31 past the contoured margins of the plates 28 and 29, thus turning up the edges by about its margin with the exception of the straight cut against the heel seat. At the same time the toe crimper 56 on that side of the machine has advanced and been pressed against the toe portion of the blank so that as the blank goes down past the folding blades 28 and 29 the toe is crimped to make a uniform fold. As soon as the blank has passed the level of the plates 28 and 29 the rise of the cam 17 comes into operation, rocking the lever 12 and operating the sliding rods 8 and 9. These rods move the plates 28 and 29 toward each other inwardly crimping the flange which has been upturned, as shown on the left of Fig. 2. The groove 16 of the cam 17 and also the groove of the cam 65 are cut in phases of rest and motion of 90 degrees each, so that as the slides 20 and 21 advance toward each other they bring the edges of the turned plates 28 and 29 across the margins of the blank, and then pause for

a quarter of a rotation. During this pause the operative can remove the finished fastening member and insert a new blank in the other side of the machine, returning to that first mentioned in time to catch and replace the now finished blank first mentioned. The operation of the machine is, therefore, practically continuous, while giving to each member a sustained fold in the turning process. In case it be desired to give the operator a longer time to place the work in the machine, while still maintaining the pressure upon the formed work on the other side of the machine, the clutch may be intermittently operated after each blank has been placed in the machine.

Various modifications in the structure and operation of my device may obviously be made within the limits of the appended claims.

What I, therefore, claim and desire to secure by Letters Patent is:—

1. In a machine for forming a fastening member, a folding form, a pair of transversely acting contoured folders, means for relatively moving said folders and form for bringing one past the other and means for crimping the toe of the blank during the relative movement of the form and folders.
2. In a machine for forming a fastening member, a folding form, a pair of transversely acting contoured folders, means for relatively moving said folders and form for bringing one past the other and means for moving said folders toward and from each other after said passage, said folders being caused to dwell in their position of nearest approach before separation.
3. In a machine for forming fastening members, a pair of yielding blank supports, a folding form for each of said supports, means for advancing said folders against said support alternately to clamp a blank, transversely acting folders normally positioned in the plane of said support and means for advancing said folders toward and from each other alternately in pairs.
4. In a machine for forming fastening members, a pair of yielding blank supports, a folding form for each of said supports, means for advancing said folding form against said support alternately to clamp a blank, transversely acting folders normally positioned in the plane of said support, means for advancing said folders toward and from each other alternately in pairs and toe crimping means alternately effective on said blanks upon the yielding of said blank supporting means.
5. In a machine for forming fastening members, a pair of vertically moving folding forms, means for vertically moving said forms, a pair of transversely acting members for each form and means for alternately

moving said folders in pairs toward and away from each other in relative alternation and with alternate pauses.

6. In a machine for forming fastening members, a pair of vertically yielding blank supports, a pair of vertically moving folding forms, means for vertically moving said form, a pair of transversely acting members for each form normally positioned below the same in the plane of a normal position of the vertically yielding blank supports, a cam for alternately moving said folders in pairs toward and away from each other in relative alternation and with alternate pauses, and means to rotate the same.

7. In a machine for continuously forming fastening members, a pair of folding forms,

a pair of transversely acting contoured folders adjacent to each folding form, said forms and folders being relatively movable, means for relatively moving said folders and forms for bringing one past the other, means for moving each pair of folders toward and from each other after said passage, said passage being alternatively effected and said folders being caused to dwell in their position of nearest approach to each other before separation.

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

WARREN F. FRASER.

Witnesses:

R. B. ELLMS,

L. D. GOODWIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
