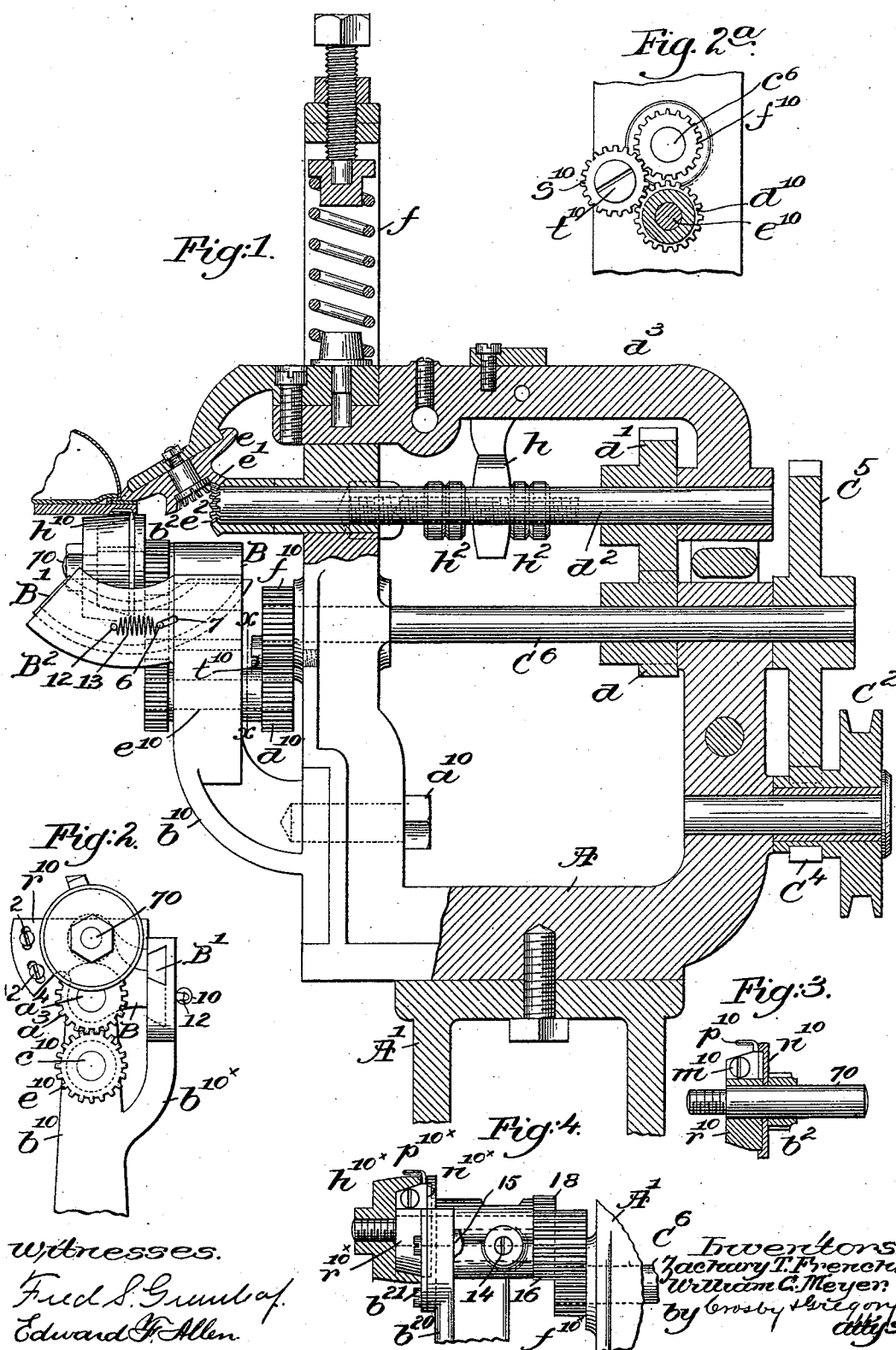


(No Model.)

Z. T. FRENCH & W. C. MEYER.
CHANNELING MACHINE.

No. 529,900.

Patented Nov. 27, 1894.



Witnesses.
Fred S. Grant of
Edward F. Allen

Inventors.
Zachary T. French,
William C. Meyer
by Crosby & Company
attys.

UNITED STATES PATENT OFFICE.

ZACHARY T. FRENCH AND WILLIAM C. MEYER, OF BOSTON, MASSACHUSETTS.

CHANNELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 529,900, dated November 27, 1894.

Application filed January 2, 1894. Serial No. 495,401. (No model.)

To all whom it may concern:

Be it known that we, ZACHARY T. FRENCH and WILLIAM C. MEYER, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Channeling-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to improve the machine made the subject of Letters Patent, No. 500,060, dated June 20, 1893, our present improvement relating to novel mechanism for better supporting and feeding the material. In the patent referred to the edge of the outer sole and the welt are held and fed past the channel knife by two positively rotated bevel faced wheels, the wheel in engagement with the sole to feed it, acting against only that part of the sole outside the channel.

25 The outer sole to be channeled on the shoe on the last, is commonly made wider than necessary in the completed shoe, so as to furnish sufficient material against which the undermost bevel wheel of the pair, called the supporting wheel, acts to enable the said wheel to engage the sole to feed it, and after the outer sole has been slotted the sole edge and welt are trimmed to the shape of the last, on a suitable machine in usual manner. In practice it is found that the bottomers frequently fail to let the outer sole extend out fully to the outer edge of the welt, and in such case the edge of the outer sole is not properly acted upon by the said supporting wheel, which results in unequal channeling and feeding. In the machine described in said patent the feeding devices act wholly at one side of the shank of the knife used.

30 We have aimed to support the sole on a feeding device adapted to act positively on the sole at the inner side of the knife, and between its shank and the median line of the sole, rather than at the outer side only of the sole, and preferably we employ two wheels, one to act on the sole at each side of the knife and at opposite sides of the channel being cut, so that should the sole edge fall short of the welt edge, no injurious action will result therefrom.

Figure 1 is a partial side elevation and sec-

tion of a channeling machine of the class referred to, with our present improvements added. Fig. 2 is a detail to be described, taken from left of Fig. 1. Fig. 2^a is a partial section to the right of the dotted line *z*, Fig. 1. Fig. 3 shows the feed wheel shaft with one of the feed wheels omitted; said figure also showing the knife-holder in elevation; and Fig. 4 is a modification.

The head or frame A, A'; the shafts C⁶, d², carrying the pinions d, d'; the arm d³; the presser or upper feed wheel or device e having the gear e' engaged by gear e² on shaft d², and the gears C⁵, C⁴, the pulley C², the spring f, the arm h on arm d³, and the nuts h² to control the position of the edge of the presser e with relation to the feed wheel, are and may be all as fully described in said patent, and need not, therefore, be herein more fully described.

We will now describe our present improvement. We have secured to the frame-work A by bolt a¹⁰ a stand b¹⁰ having suitable bearings for a shaft c¹⁰ provided at its inner end with a pinion d¹⁰ and at its outer end with the pinion e¹⁰, the pinion d¹⁰ being engaged by an intermediate pinion s¹⁰, on a stud t¹⁰, the intermediate being rotated by the pinion f¹⁰ on the rotating shaft C⁶.

The stand b¹⁰, as shown in Figs. 1 and 2, of this invention has a branch b^{10x} having a curved or segmental groove, preferably of dovetailed shape, as best shown in Fig. 2, in which is entered a dovetailed shoe B' connected to or forming part of a frame B, which frame is made movable with relation to said stand b¹⁰ and constitutes what we denominate a "tipping frame."

The tipping frame has a suitable stud a⁴ upon which is mounted an intermediate gear a³ which is engaged by the pinion e¹⁰, said intermediate gear in turn engaging a pinion b², fast on a short shaft 70, having a suitable bearing in the upper part of the tipping frame B, said short shaft carrying a right and left feeding and supporting wheel n¹⁰, h¹⁰, on which will rest the sole of the shoe at opposite sides of the shank of the channel knife p¹⁰. The knife p¹⁰ is secured to a knife-holder 7¹⁰ by suitable screw m¹⁰, see Fig. 3, and said knife-holder has a slotted flange at one side, see Fig. 2, through which are passed screws

2, said screws entering threaded holes of the stand b^{10} , so that the said knife-holder may be adjusted about the shaft 70 to put the knife in just the desired position.

5 The wheel h^{10} is cup-shaped at one side, as best shown in Fig. 1, so that when in place upon the shaft g^{10} the said wheel may, by inclosing the knife-holder, have its inner edge brought close to the left-hand side of the shank of the knife p^{10} and under the cutting part or blade of said knife, the channel lip passing between the under side of the knife and the periphery of the supporting and feeding wheel h^{10} .

15 The wheel n^{10} , shown as located at the right hand side of the knife-shank, runs close to said shank and acts on the side between its edge and the channel, but should the edge of the sole extend for a less distance than to the outer edge of the welt, the feeding of the sole by the wheel h^{10} will insure good work.

The knife-holder besides holding the knife, performs another and most important function, viz: It acts as a bearing, see Fig. 3, for the shaft carrying the wheel or wheels described and directly in the line of greatest strain on said shaft, the said bearing by being located between or close to said wheels preventing any possible deflection or strain on the said shaft which would tend to strain the wheels away from the blade of the knife or out of true running position.

The foot B' of the tipping frame has, see Fig. 1, a stud 6 which is extended through a slot 7 in the portion B^2 of the stand b^{10} , said stud having attached to it one end of a spring 13, the other end of the spring being connected to a suitable pin or projection 12 of the frame B^2 , said spring normally acting to keep the tipping frame B drawn to the left and with the wheel h^{10} pressed upwardly to its fullest extent, said frame being permitted, however, to tip by or through pressure upon the wheel h^{10} , the extent of tipping being determined in this instance by the length of the slot 7, and the force to be overcome in the tipping action being that measured by the spring 13.

The tipping of the frame and knife improves the cutting properties of the knife for some classes of work, but our invention is not in all cases limited to the employment of the tipping frame, as will be hereinafter further described.

Prior to our invention we are not aware that 55 a machine having a knife to act on a sole, as described, to cut the same, has ever had a feeding wheel located close to the shank of the knife and between said shank and the median line of the sole, nor are we aware that 60 any such machine has ever had a feeding wheel at each side of the shank of the knife, one wheel directly under the edge of the knife, both wheels feeding the sole positively, and hence our invention is not limited to the exact construction of parts shown, but is meant to cover and include any mere mechanical equivalents of the same.

In the use of this machine it will be understood that the edge of the presser e , of whatever form, will contact with the upper lying 70 on the edge of the last, and the channel cut in the sole will, therefore, conform to the contour of the last, and it will also be borne in mind that in this present machine, and as provided for in the said patent the yoke d^3 75 may be moved longitudinally by or through a treadle under the control of the operator, thus enabling the distance of the channel to be varied more or less from the edge of the outer sole to thus enable the channel to be 80 made at the proper distance within the edge at the shank, and closer to the edge about the fore part.

In the modification Fig. 4 the standard b^{20} , corresponding substantially with the stand- 85 ard b^{10} before described, has fixed in it, by suitable screw 14, a stud 15 on which is mounted loosely the broad intermediate gear 16, said gear being engaged by a gear f^{10x} which corresponds with the gear f^{10} before described, 90 it being supposed to be carried by the shaft C^6 . The intermediate gear 16 engages a pinion 18 on a short shaft supported in a suitable bearing at the upper end of the stand b^{20} , said shaft having attached to it right and 95 left feeding and supporting wheels n^{10x} and h^{10x} like the wheels n^{10} and h^{10} before referred to, said shaft also being extended through a suitable knife-holder, as r^{10x} , which knife-holder carries a blade p^{10x} , the shank of which 100 is located between said feeding and supporting wheels, said knife-holder being fixed to the stand by suitable screws b^{21} .

In the modification Fig. 4, instead of supporting the shaft carrying the feeding and 105 supporting wheels so that it may tip with relation to its length, the shaft is shown as mounted in rigid bearings, and the gearing for rotating the shaft is slightly altered. Otherwise the invention is the same as in Fig. 110 1 of the drawings.

The extent of tipping motion of the frame B is not very great, nor will it be required to be of any great extent, and to enable this tipping to be done the teeth of the pinion or 115 the intermediate gear a^3 may be slightly convex, or it may fit the teeth of the pinion driving it loosely.

Having described our invention, what we claim, and desire to secure by Letters Pat- 120 ent, is—

1. The feed wheel n^{10} adapted to act as a support for the bottom of the sole at its edge outside the channel, the knife p^{10} , a rotating feed shaft, and a second feeding and supporting wheel h^{10} located at the other side of the knife shank and under the blade of the knife and having its center of rotation coincident with that of the wheel n^{10} , to operate, substantially as described. 125 130

2. In a channeling machine, a presser to act on the welt of a welted shoe, and a knife to cut a channel in the outer sole of said shoe, combined with a wheel to support and feed

the sole at a point between the center or median line of the said sole and the shank of said knife, the said wheel extending under the blade of said knife, substantially as described.

5 3. The combination with a feed wheel chambered at one side, and the knife having a blade adapted to overhang said wheel, of a knife-holder covered and protected by said wheel, substantially as described.

10 4. The combination with the shaft having the two feed wheels, of the stationary knife-holder located between said wheels and having a bearing which sustains the said shaft in its line of greatest strain, to operate, substantially as described.

15 5. The feed wheel n^{10} adapted to act as a support for the bottom of the sole at its edge outside the channel, the knife p^{10} , and the rotating shaft and its second attached feeding and supporting wheel h^{10} located at the other side of the knife shank and under the blade of the knife, whereby the said wheel h^{10} is

made to not only act on the sole to feed it, but also to act on the lip of the channel after the latter has been formed, combined with gearing to rotate said wheels e, n^{10}, h^{10} , to feed the sole and shoe, substantially as described.

6. In a channeling machine, a presser to act on the welt of a welted shoe, and a knife to cut a channel in the outer sole of said shoe, combined with a wheel to support and feed the sole at a point between the center or median line of the said sole and the shank of said knife, the said wheel extending under the blade of said knife, and a tipping support for the shaft carrying said wheel, to operate, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ZACHARY T. FRENCH.
WILLIAM C. MEYER.

Witnesses:

GEO. W. GREGORY,
LAURA MANIX.