Feb. 6, 1934. C. A. OLSEN 1,945,864

HEEL LIFT MACHINE

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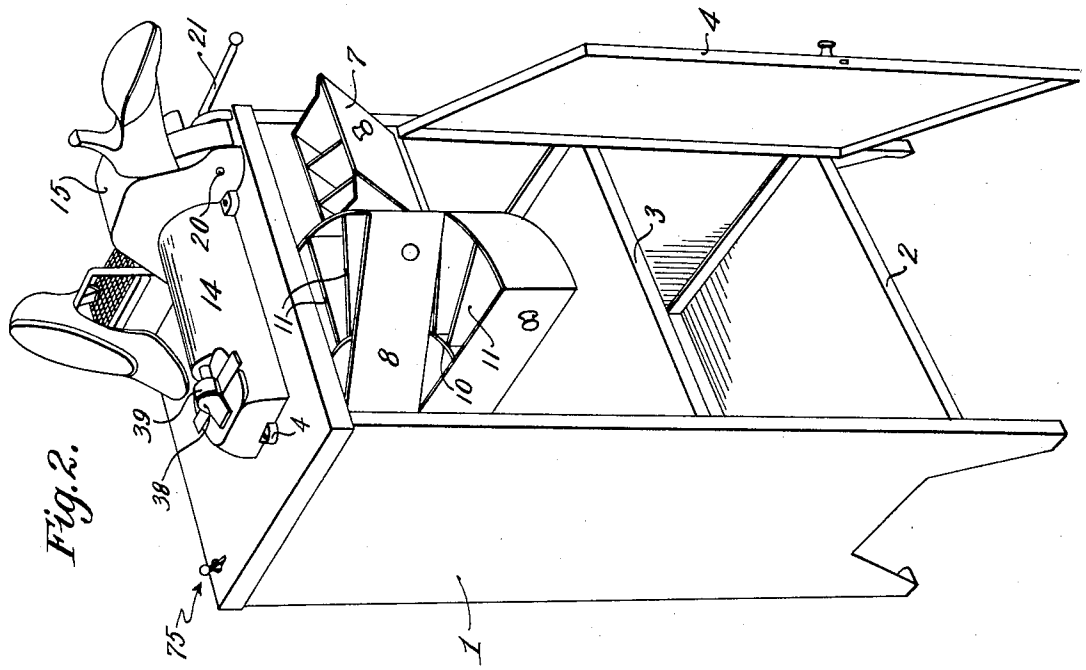


Fig. 2.

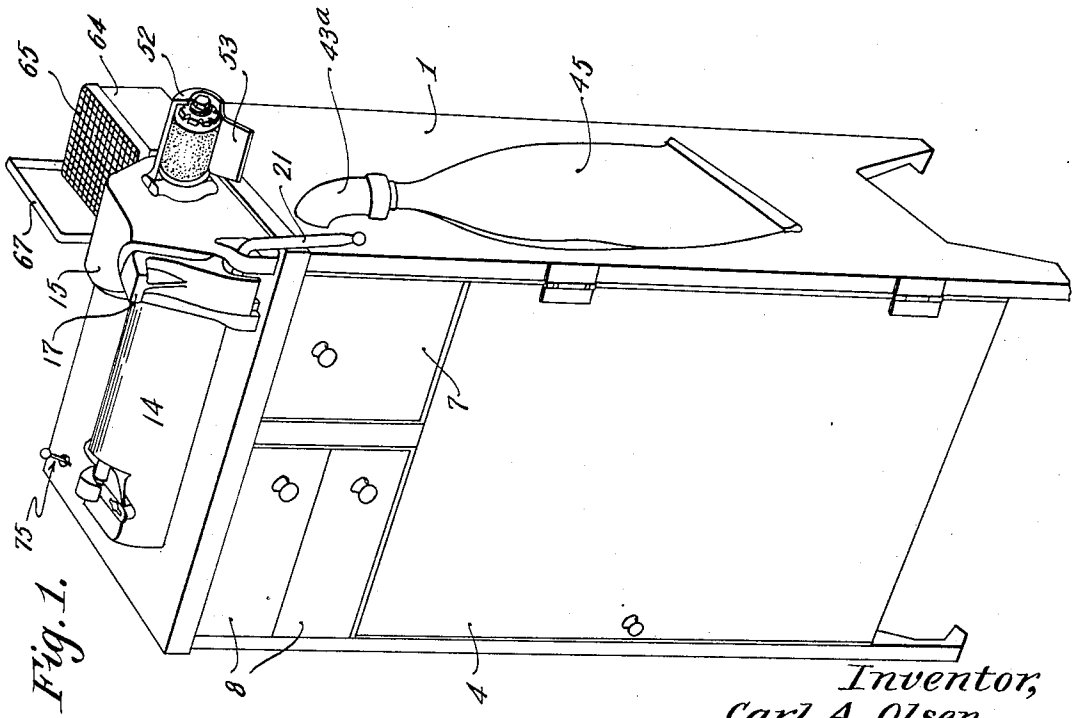


Fig. 1.

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Fig. 3.

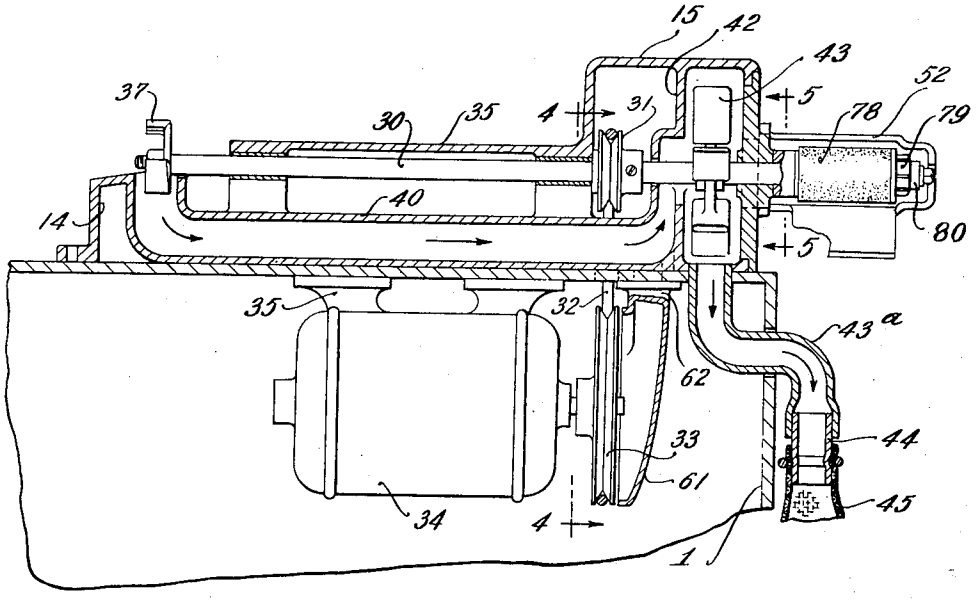


Fig. 4.

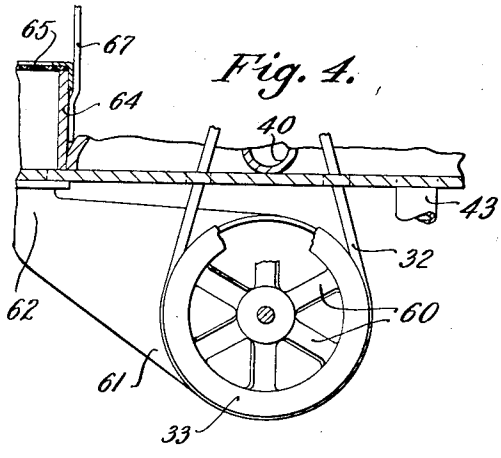
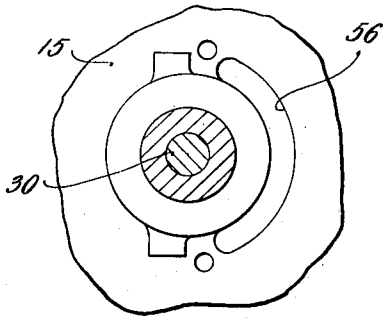


Fig. 5.



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Fig. 6.

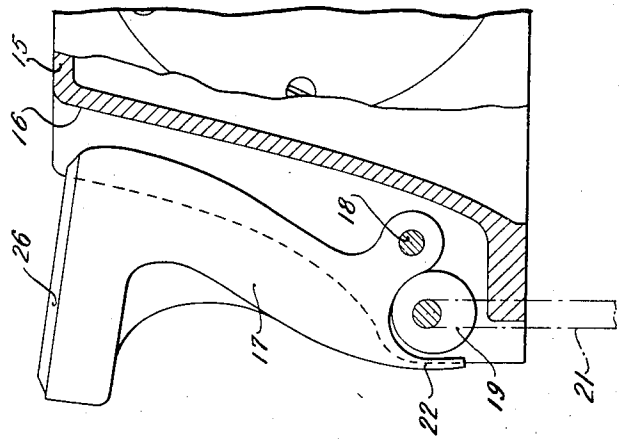
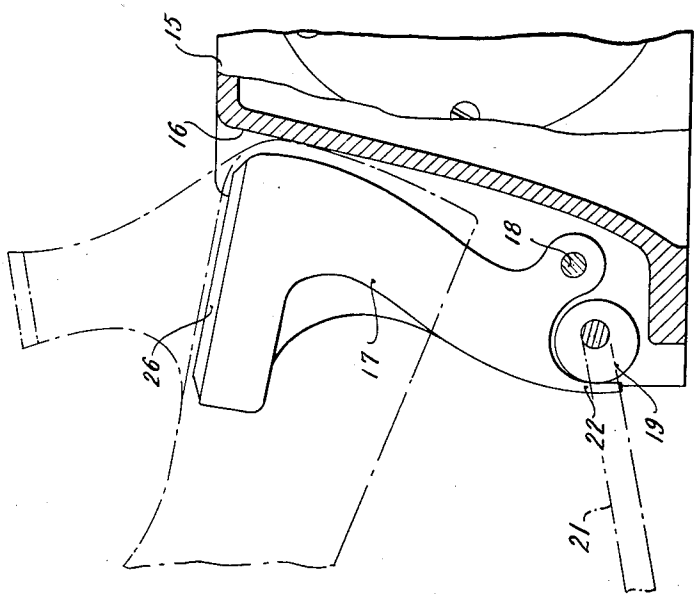


Fig. 7.



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Patented Feb. 6, 1934 1,945,864

UNITED STATES PATENT OFFICE

1,945,864

HEEL LIFT MACHINE

Carl A. Olsen, Lynn, Mass., assignor to Toplifter, Inc., Lynn, Mass., a corporation of Massachusetts

Application December 17, 1931
Serial No. 581,663

7 Claims. (Cl. 12—1)

This invention relates to a machine to facilitate the removal and replacement of top lifts on shoe heels, and particularly on wooden heels of women's shoes.

My prior application Serial No. 550,332, filed July 13, 1931, discloses a unitary machine of this general type arranged to permit a single operator to perform the necessary operations to remove the worn lift, properly to level the heel if necessary, to apply the new top lift, to trim and shape the edges of the same, and to burnish or buff the heel with the top lift applied, when necessary. Machines of the type disclosed in my above-identified copending application have been employed with particular success in shoe stores, department stores and similar institutions, and the present invention provides improvements which make a machine of this character even more suitable for an environment of such a type, as well as generally more satisfactory in use. Thus, for example, the present invention provides an arrangement of the various component elements of the machine and of various receptacles for supporting top lifts, nails, cement, finishing stain or the like in a convenient manner so that all of the necessary operations may be performed with singular alacrity, permitting top lifts to be replaced in a very short interval of time and thus allowing highly satisfactory service to a customer who is waiting for the top lifts to be changed.

Furthermore, the present invention affords distinct improvements in the cleanliness of operating conditions permitted with a machine of this character. Thus the machine may be used without the necessity of frequent sweeping of trimmings from the floor or the spreading of dust on surrounding articles.

As in the case of the machine disclosed in my prior application, a single unitary frame supports the various implements and devices for operating upon the shoe heel and top lift, the machine having a main shaft with a rotary trimming wheel at one end and with a finishing wheel or a burnishing, filing and sanding element at its other end. A movable anvil may be arranged to cooperate with a fixed portion of the main frame to clamp and support the shoe when the top lift is being removed as well as when the new lift is being nailed to the heel; preferably a quick-acting locking arrangement is provided to assure the proper holding of the shoe upon the anvil or its instantaneous release.

The frame of the machine preferably is disposed upon a suitable cabinet which is particularly arranged to afford the maximum of convenience to the operator of the machine and to afford suitable air passages and storage space for purposes to be described. The cabinet preferably is provided with swinging drawers having compartments to hold graduated sizes and/or types of heel lifts as well as fastening nails therefor. A drop-drawer is provided to hold containers for stains and cement. Associated with the cabinet is a grille and holder arranged in conjunction with suitable draft-inducing means so that the heels that have just been stained may be exposed to a draft of air and rapidly dried, thus expediting the completion of the replacement operation and permitting better service to be afforded.

A draft-inducing factor also is arranged to remove shavings or trimmings from the region of the cutter and to deposit the same in a suitable waste bag that may be mounted at one side of the cabinet. This draft-inducing means is also arranged to receive dust or particles from the finishing wheel, and to deliver the same to the waste receptacle.

In the accompanying drawings;

Figs. 1 and 2 are isometric views of a machine constructed in accordance with the present invention;

Fig. 3 is a vertical section through the frame of the machine and the upper part of the cabinet, certain parts being removed and broken away for clarity of illustration;

Figs. 4 and 5 are sections indicated by lines 4—4 and 5—5 respectively of Fig. 3; and

Figs. 6 and 7 are sectional details showing the arrangement of the anvil with its supporting and locking means.

Referring to the accompanying drawings, and first more particularly to Figs. 1 and 2, my improved machine may be seen to comprise a cabinet, designated in general by the numeral 1, which is provided with a bottom 2 and an intermediate shelf 3 that are normally concealed by a door 4. The lower part of the cabinet may be employed for the storage of any miscellaneous materials, extra quantities of top lifts, extra bottles of stain, jars of cement or the like. At the right of the cabinet is a drop-drawer 7, the lower front corner of which swings about a horizontal axis. This drawer preferably is divided into a plurality of compartments of a size and shape to receive bottles of coloring material or stain and a jar of cement. Beside the drop drawer 7 are swinging drawers 8 which conveniently may swing about a vertical axis at the front corner of the cabinet.

Each of these drawers is divided by an arcuate partition 10 into inner and outer sections, the outer section being divided by radial partitions 11 into a plurality of compartments. Thus the inner section may receive nails for securing the now top lifts in place, while the outer compartments may contain new top lifts of different sizes and/or types.

Secured upon the top of the cabinet is the frame 14 of the machine which may be in the form of an aluminum casting of the general type disclosed and described in my above-identified, copending application which is incorporated herein by reference. The frame 14 preferably is provided with a hollow housing portion 15 at one end, this housing portion being provided with a downwardly and forwardly inclined groove 16 which has a shape substantially conforming in cross section to the shape of the rear of a shoe upper. An anvil 17 is pivotally mounted upon a horizontal pin 18, the ends of which are fixed to the casting 14. An eccentric 19 is pivotally mounted upon a shaft 20 which is extended to provide a handle 21 (Figs. 6 and 7), the handle being swung forwardly to lock the anvil in its shoe gripping position (Fig. 7) and being swung rearwardly (Fig. 6) to release the anvil from this position. As shown, a shield 22 depends from the front of the anvil to engage and substantially to conceal the eccentric 19. The body of the anvil preferably has a rear surface which is substantially complementary to the shape of the groove 16 so that the rear portion of a shoe upper readily may be gripped therebetween. While the body portion of the anvil as well as the casting 10 may conveniently be formed of aluminum, the anvil is provided with a steel plate 26 so that marring or breaking down due to the hammering of nails is avoided.

The machine has a single shaft 30 upon which the various necessary rotary elements are disposed, this shaft carrying a pulley 31 (Fig. 3) which receives a belt 32 that wraps about a pulley 33 carried upon the shaft of a motor 34, the latter being supported by hangers 35 depending from the top of cabinet 1. The pulley 31 is disposed within the hollow housing 15 and the casting 14 has a tunnel portion 35 extending from this housing and surrounding the shaft 30. The projecting end of shaft 30 carries a rotary cutter 37 (Fig. 3), which is provided with a suitable end guard 38 and peripheral guard 39. This cutter and related elements may be of practically the same type as more fully disclosed and described in my above-identified copending application.

A duct 40 preferably is arranged within the tunnel 35 and has a mouth disposed beneath the cutter 37 to receive trimmings or shavings. The wall of the duct 40 is continued in a substantially vertical partition 42 within the housing 15, this partition being provided with a central opening, however, surrounding the shaft 30. Adjoining this opening is a rotary blower 43 secured to the shaft 30 and arranged to draw air through the duct 40 and the opening in partition 42, delivering the air with the entrained shavings and trimmings to an outlet duct 43^a which extends downwardly through the upper part of the cabinet 1 to a coupling 44 which normally receives a waste receptacle or cloth bag 45, this bag being of a type to permit the emission of air but to retain dust, shavings or the like. The coupling 44 is so arranged that the bag or receptacle 45 may readily be removed for emptying when necessary.

The end of shaft 30 adjoining the housing 15 may be provided with a finishing wheel including a cylinder 78 of abrasive paper or the like, such as has been described in my copending application, a rotary file 79 of grooved metal, and a burnishing portion 80. A substantially semi-cylindrical guard 52 projects from the housing 15 and has a downwardly inclined flange 53 to provide a rest for a shoe heel which is being operated upon by the finishing wheel, i. e. by the sanding or abrasive cylinder, the rotary file, or the burnishing element.

Adjoining the inner end of the sanding wheel and between the guard 52 and the wheel is an arcuate slot 56 (Fig. 5) in the wall of casing 15 so that air is drawn by the blower 43 through this slot, whereby dust or small particles are removed from the finishing wheel and its vicinity and is disposed within the bag 45. The pulley 33 preferably is provided with inclined spokes 60 to afford a blower effect; this blower receives air through the clearance spaces about drawers 7 and 8 and causes a draft of air to pass into the distorted funnel element 61 and thence upwardly through a duct 62 to a box-like chamber 64 which may have a perforate cover or grille 65 of coarse meshed wire or the like extending over its top. Thus a draft of air is emitted through the openings in the grille. An upstanding bail element 67 projects above the inner end of the grille so that the heel of a shoe may be hooked over the same, the lower part of the heel being exposed above the grille and thus exposed to the draft of air flowing therefrom (see Fig. 2).

A machine of this character may be disposed at any suitable point where electric power is available; for example, a switch 75 may be disposed at one corner of the top of the cabinet to control the supply of energy to the motor 34. When a top lift is to be replaced, the shoe may be disposed upon the anvil 17, the lever 21 being swung to the position shown in Fig. 7 to lock the rear portion of the upper against the inclined groove in the front of housing 15. Thereupon the worn top lift may be pried off the heel by any suitable hand tool and the nails remaining in the heel may be pulled out or driven entirely into the heel. If the surface of the heel after the top lift has been removed is not ready for the application of the new top lift, for example, if it has worn off at an angle, the shoe is removed from the anvil before the new top lift is applied, and the surface of the heel is treated with the sanding element 78 so that it may be flat and disposed at a proper angle to receive the new top lift.

The new top lift is applied to the heel when the shoe is supported upon the anvil. Top lifts preferably may be provided to users of machines of this character with holes already pierced in the rubber or leather thereof to serve as guides for the nails. The top lifts may be kept in the swinging drawers 8 which may be quickly moved to their open or exposed position, thus permitting ready inspection of the contents and removal of top lifts and nails from one of these drawers without danger of possible movement of the drawer too far or undesirable projection of the drawer into the space in front of the machine. The drop-drawer 7 may then be moved to its open position and cement applied to the surface of the top lift and/or the surface of the heel before the top lift is nailed in place. The nails may readily be driven into the heel at the proper angles to each other to ensure firm retention of the top lift on the heel, the cement, if employed, aiding this retention.

Thereupon the lever 21 may be swung to the position shown in Fig. 6, causing the anvil 17 to swing forwardly to release the shoe. The top lift then may be trimmed by the cutter 37. For this purpose the switch 75 is closed, causing the motor 34 to drive the pulley 31 and shaft 30, the bottom of the heel or top lift being supported upon the inclined platen surface which is more fully disclosed and described in my copending application.

After the lift has been trimmed by the cutter 37 and further treated by the file 79, when necessary, stain may be applied to the joint between the heel and the top lift and the shoe disposed over the grille 65 in the position illlustrated in Fig. 2, thus permitting rapid drying of the stain. After the stain has thus been permitted to dry or initially to set, the buffing wheel 80 may be employed to afford a suitable gloss on this portion of the heel.

It is evident that a machine of this character affords a singularly efficient and convenient apparatus to facilitate the removal and replacement of top lifts on women's shoes, and particularly a machine of this character may be satisfactorily employed in a store or similar institution having fashionable appointments without seeming incongruous. Thus the trimmings from the trimming wheel 37 as well as the dust from the finishing wheel are impelled by the blower 43 into the passage 43a, thus passing to the waste receptacle 75. Accordingly the surroundings of the machine may be kept clean and there is a noticeable absence of dust, dirt, small shavings, trimmings, or similar particles upon the parts of the machine or in the neighborhood thereof. The arrangement of the swinging drawers affords the maximum convenience to the operator in the selecting of the proper size of top lift and in the obtaining of nails for this purpose, while the drop-drawer 7 does not project materially beyond the front of the machine and yet provides convenient means for holding bottles of stain and a cement jar. The handle 21 with the associated locking means 19 affords simple and effective means for locking and positively releasing the anvil from its shoe holding position. The grille 65 facilitates the drying of stain upon the back of the shoe.

It thus is evident that this invention affords a particularly convenient arrangement of the necessary and desirable elements for performing the operations incidental to the removal and replacement of heel lifts, and that the machine permits such operations to be performed in the minimum of time, thus permitting a customer to be served without undesirable and unpleasant delay.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. A machine of the class described, comprising a cutting wheel, a finishing wheel, a single shaft to which the wheels are connected, a casing supporting the shaft, a cabinet supporting the casing, a waste receptacle associated with the cabinet, a draft-inducing element upon said shaft intermediate said wheels, and an air duct with which said element is associated, said duct having branches to receive waste particles from both of said wheels to be deposited in said receptacle.

2. A machine of the class described, comprising a trimming wheel, a finishing wheel, a single shaft upon which the wheels are mounted, a casing for said shaft, said casing including a tunnel-like portion and enlarged housing portion, a driving element fixed to said shaft within the housing, a draft-inducing element secured to the shaft within the housing, said housing having a partition between said elements, a duct extending through the tunnel portion of the housing arranged to receive trimmings from the trimming wheel and to direct them to the portion of the housing occupied by the draft-inducing element, an outlet duct extending from that portion of the housing, and an air-permeable receptacle to receive said trimmings.

3. A machine of the class described, comprising a trimming wheel, a finishing wheel, a single shaft upon which the wheels are mounted, a casing for said shaft, said casing including a tunnel-like portion and enlarged housing portion, a cabinet supporting the casing, a driving element fixed to said shaft within the housing, a driving motor supported by the cabinet of the housing and operatively connected to said element, a draft-inducing element secured to the shaft within the housing, said housing having a partition between said elements, a duct extending through the tunnel portion of the housing arranged to receive trimmings from the trimming wheel and to direct them to the portion of the housing ocupied by the draft-inducing element, an outlet duct extending from that portion of the housing, and an air-permeable receptacle to receive said trimmings.

4. A machine of the class described, comprising a trimming wheel, a finishing wheel, a single shaft upon which the wheels are mounted, a casing for said shaft, said casing including a tunnel-like portion and enlarged housing portion, a cabinet supporting the casing, a driving element fixed to said shaft within the housing, a driving motor supported by the top of the housing and operatively connected to said element, a draft-inducing element secured to the shaft within the housing, said housing having a partition between said elements, a duct extending through the tunnel portion of the housing arranged to receive trimmings from the trimming wheel and to direct them to the portion of the housing occupied by the draft-inducing element, an outlet duct extending from that portion of the housing, an air-permeable receptacle to receive said trimmings, said housing providing an opening adjoining the finishing wheel, and a hood disposed below and behind said finishing wheel, said opening connecting with the portion of the housing surrounding the draft-inducing element, whereby dust from the finishing wheel may also be received by the receptacle.

5. A machine of the class described, comprising a trimming wheel, a finishing wheel, a single shaft upon which the wheels are mounted, a casing for said shaft, said casing including a tunnel-like portion and an enlarged housing portion, a driving element fixed to said shaft within the housing, a draft-inducing element secured to the shaft within the housing, said housing having a partition between said elements, a duct extending through the tunnel portion of the housing arranged to receive trimmings from the trimming wheel and to direct them to the portion of the housing occupied by the draft-inducing element, an outlet duct extending from that portion of the housing, said outlet duct terminat-

ing adjoining the side of the cabinet, and a bag of air-permeable cloth detachably connected to said outlet duct and removable therefrom.

6. A machine of the class described, comprising a heel cutting wheel, a heel finishing wheel, a single shaft to which the wheels are connected, a casing supporting the shaft, a cabinet supporting the casing, an air-permeable waste receptacle supported by the cabinet, a draft-inducing element upon said shaft, and an air duct with which said element is associated to cause trimmings from one of said wheels to be deposited in said receptacle.

7. A machine of the class described, comprising a trimming wheel, a finishing wheel, a single shaft upon which the wheels are mounted, a casing for said shaft, said casing including a tunnel-like portion and enlarged housing portion, a driving element fixed to said shaft within the housing, a draft-inducing element secured to the shaft within the housing, said housing having a partition between said elements, a duct extending through the tunnel portion of the housing arranged to receive trimmings from the trimming wheel and to direct them to the portion of the housing occupied by the draft-inducing element, an outlet duct extending from that portion of the housing, and an air-permeable receptacle to receive said trimmings.

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