No. 864,973. PATENTED SEPT. 3, 1907.

M. B. LEE & C. H. GRINGS.

MANUFACTURE OF HARNESS PADS.

APPLICATION FILED SEPT. 26, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

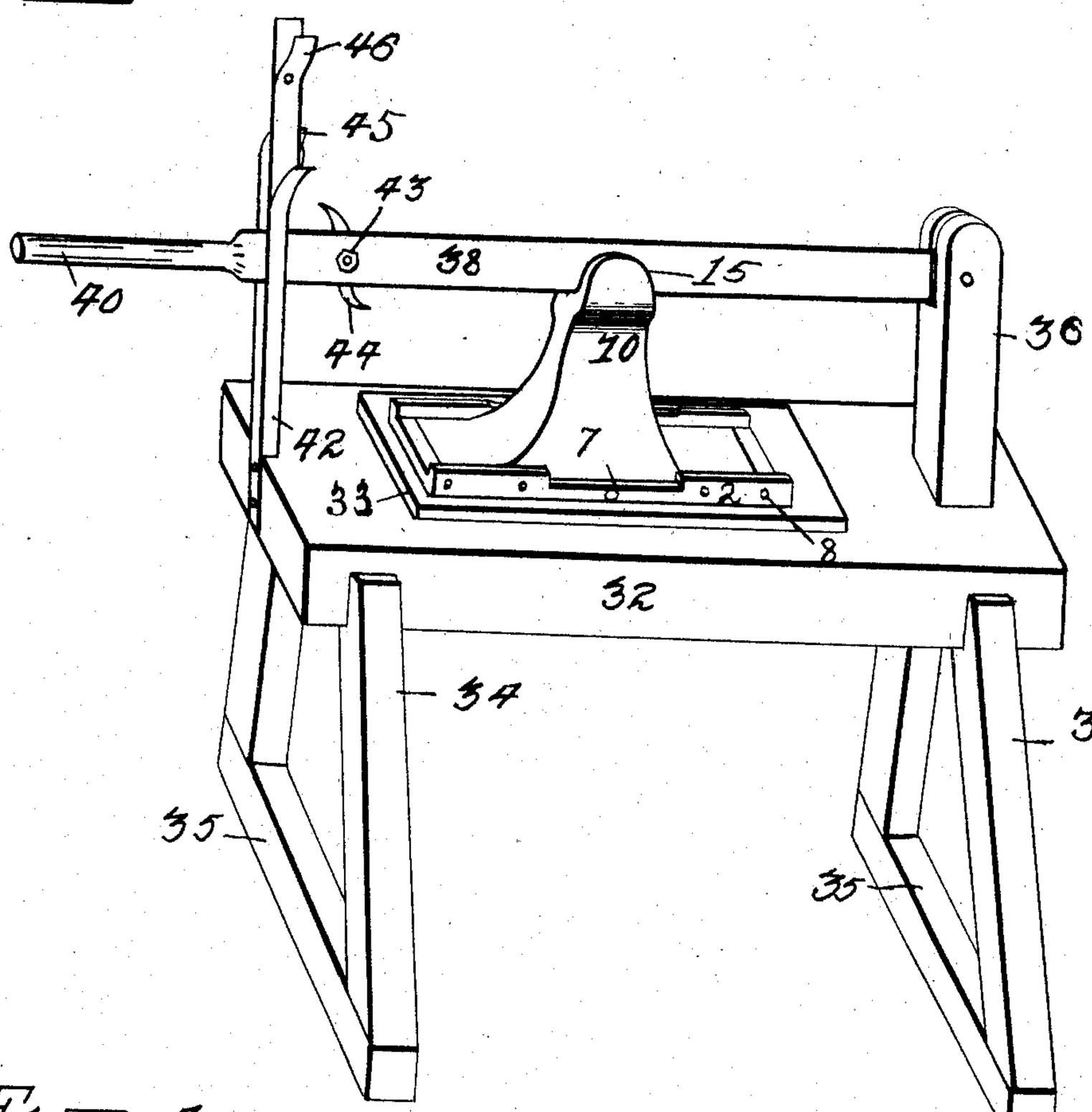

Fig. 4.

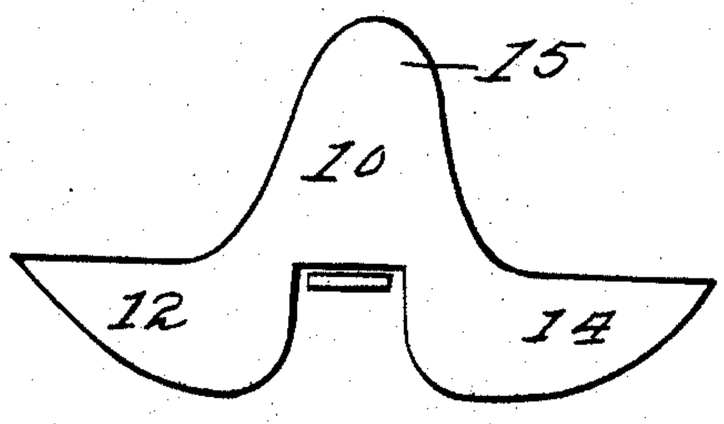

Fig. 7.

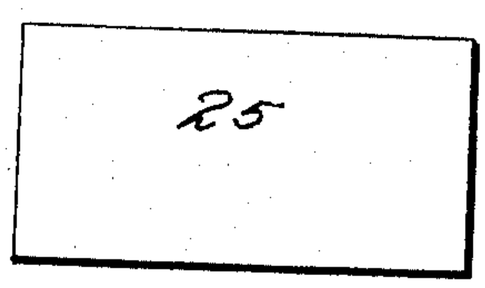

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Fig. 2.

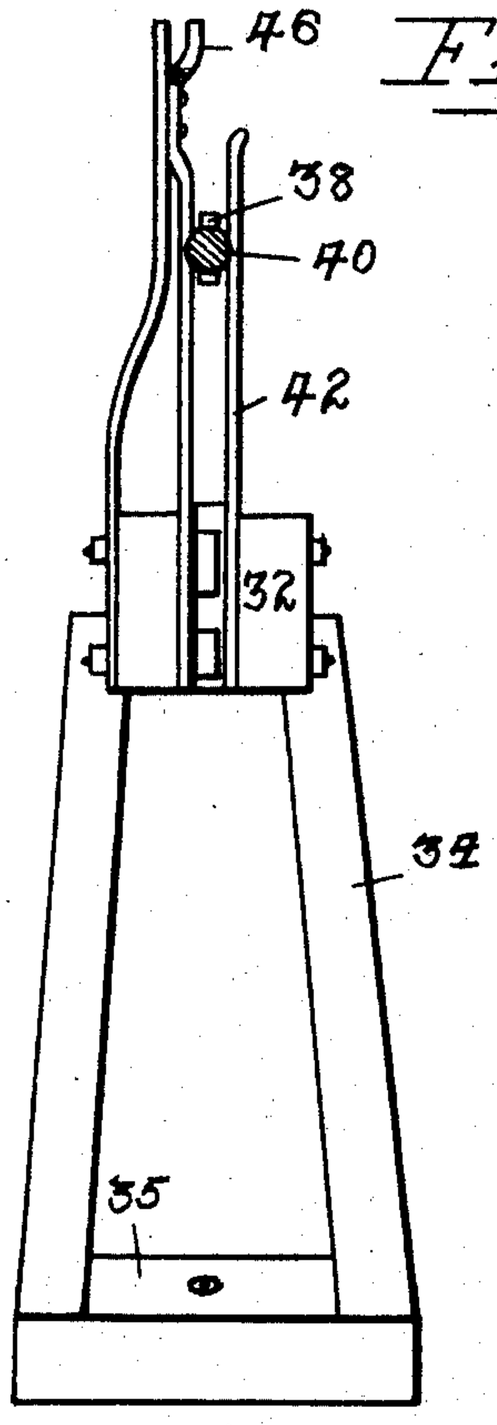


Fig. 3.

Fig. 5.

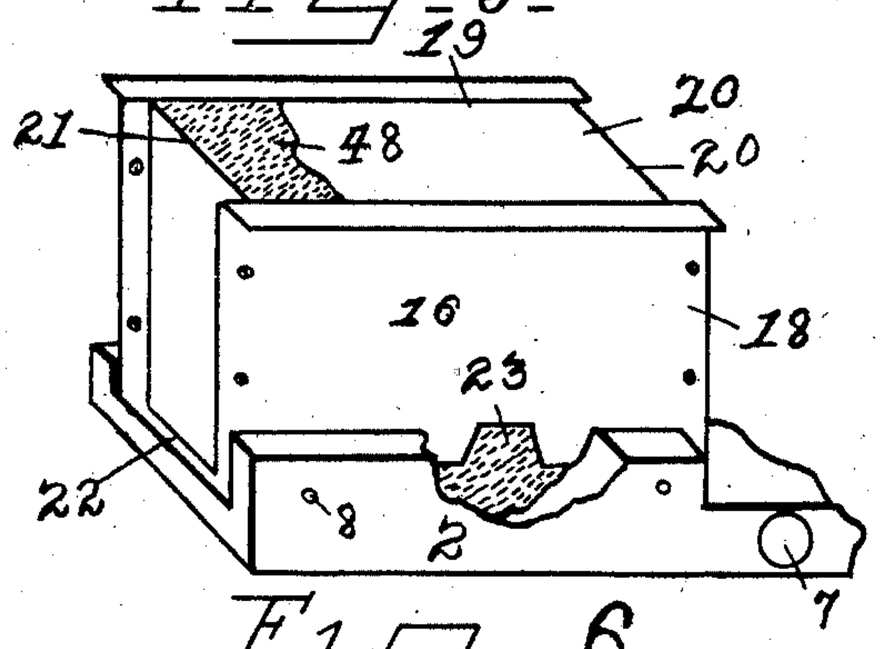


Fig. 6.

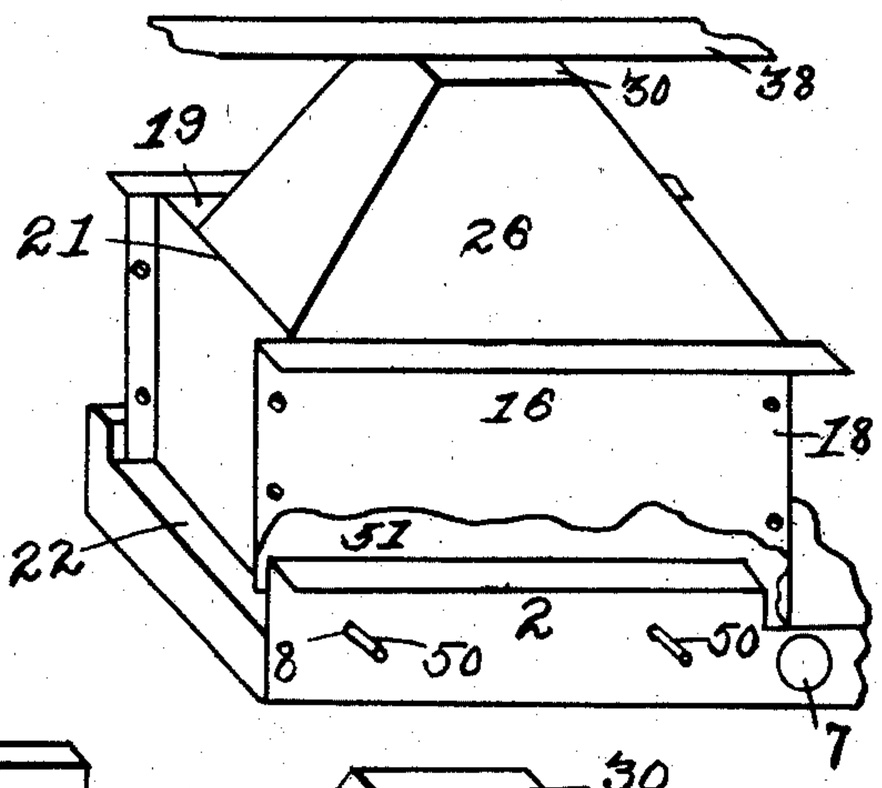
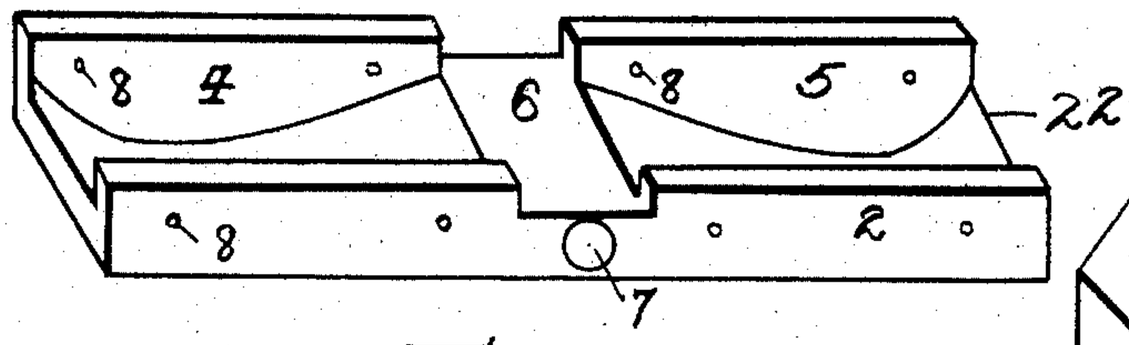
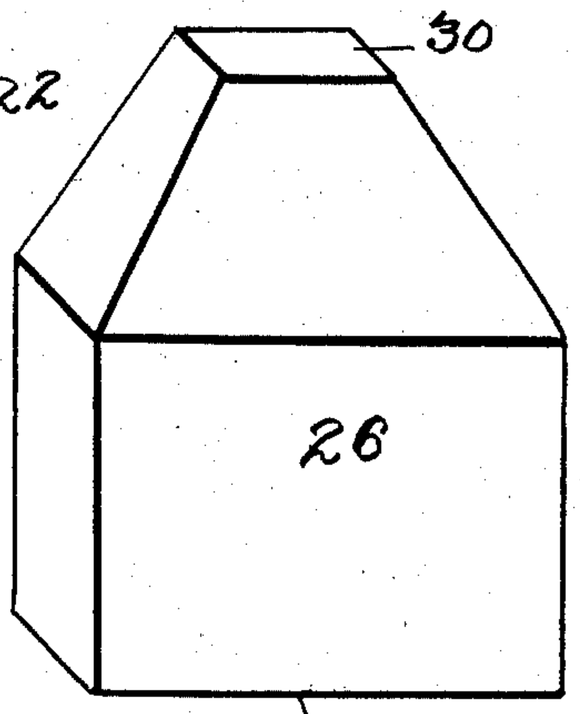


Fig. 10.





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3 SHEETS—SHEET 3.

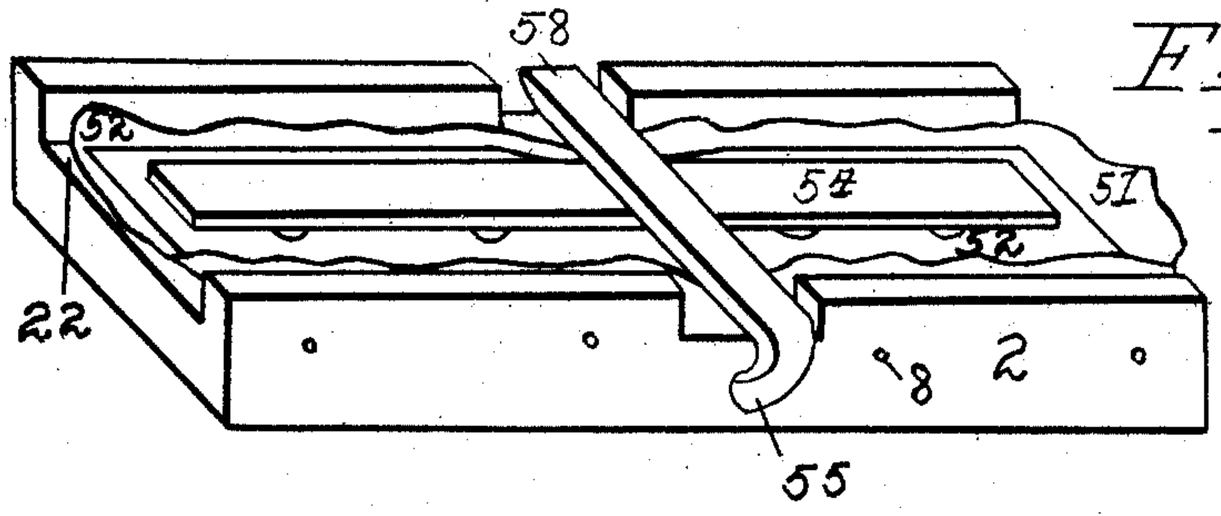

Fig. 9.

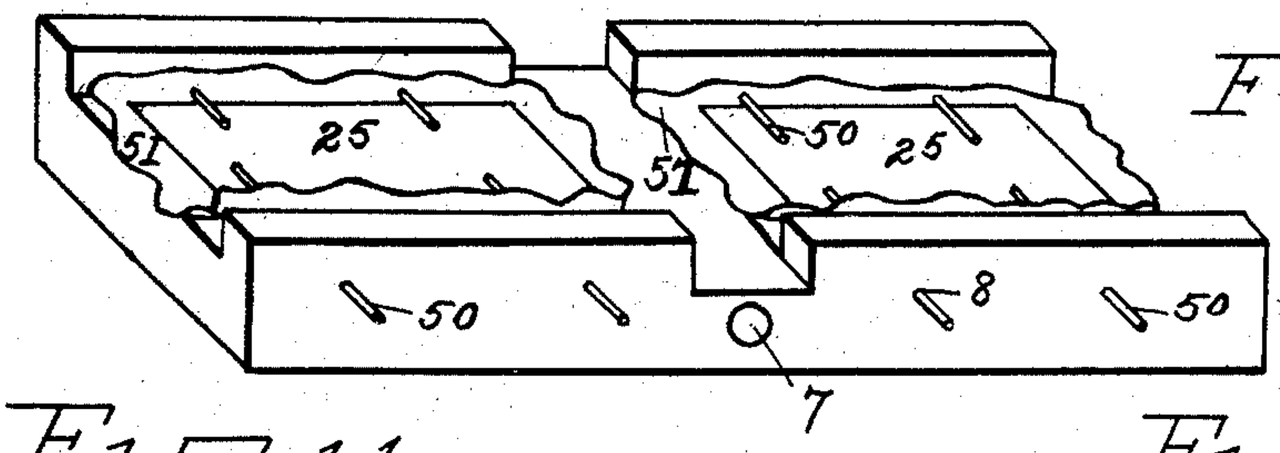

Fig. 8.

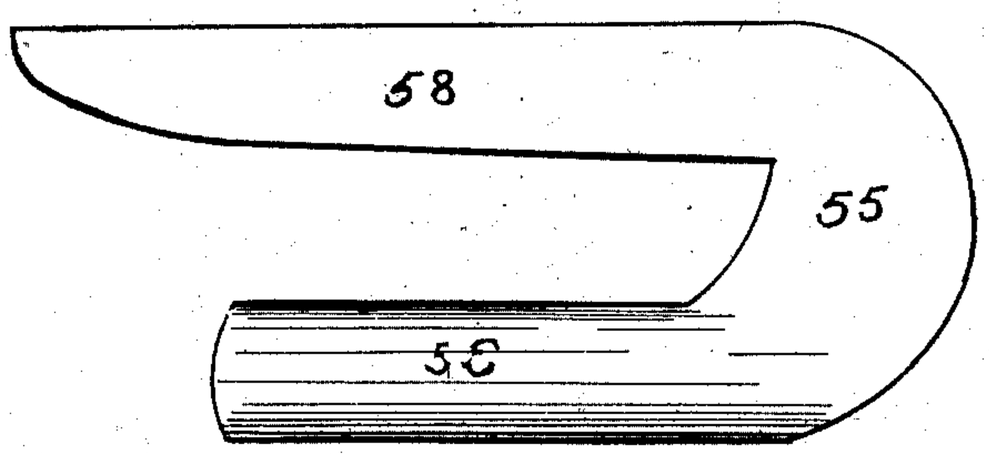

Fig. 11.

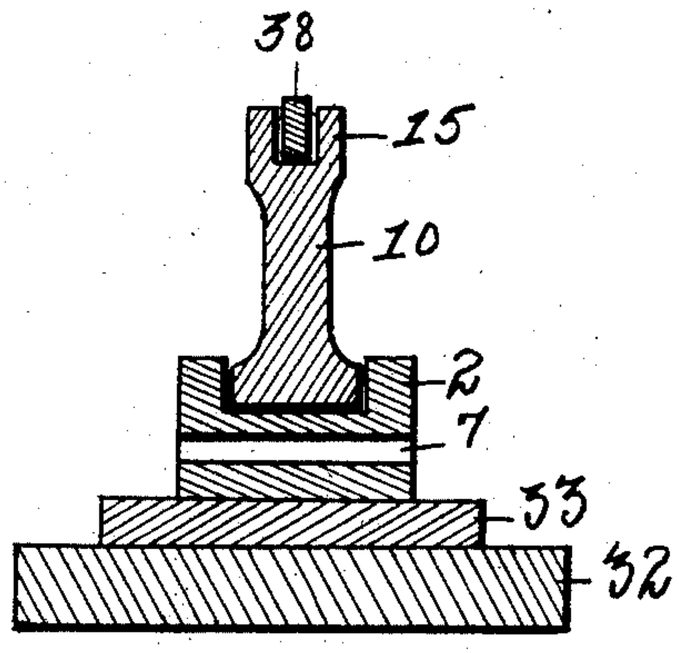

Fig. 12.

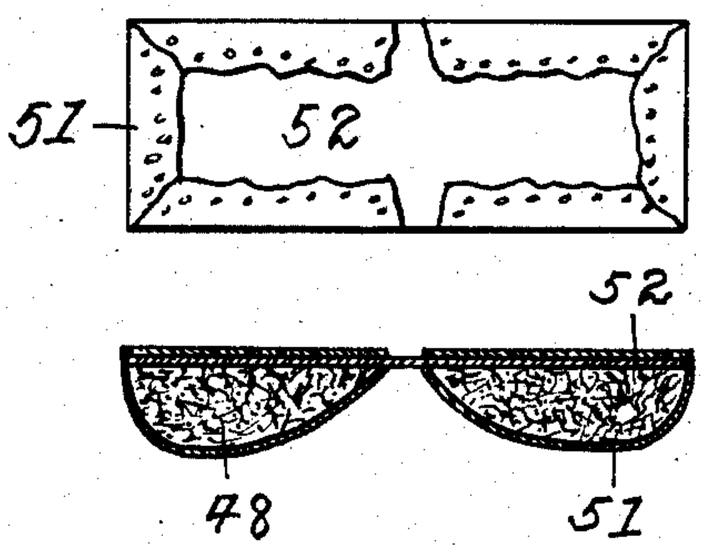

Fig. 13.

Fig. 14.

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UNITED STATES PATENT OFFICE.

MAURICE B. LEE AND CASPER HUGO GRINGS, OF DUBUQUE, IOWA, ASSIGNORS TO DUBUQUE HARNESS AND SADDLERY COMPANY, OF DUBUQUE, IOWA, A CORPORATION OF IOWA.

MANUFACTURE OF HARNESS-PADS.

No. 864,973. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed September 26, 1904. Serial No. 225,977.

To all whom it may concern:

Be it known that we, MAURICE B. LEE and CASPER HUGO GRINGS, both citizens of the United States, and residing in the city and county of Dubuque and State of Iowa, have jointly invented certain new and useful Improvements in the Manufacture of Harness-Pads; and we do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to machines for the manufacture of harnesses with special reference to those for the manufacture of harness pads, and the leading object is to provide means whereby the hair or other packing material can be quickly and easily packed in the pad and retained therein till the leather or other covering material is secured around the hair and the pad is practically completed.

Another object is to provide means for securing the leather or other material around the hair or packing and hold the pad until it is finished.

The details of construction and mode of operation will be fully set out in the following specification when read in connection with the drawings accompanying the same and forming a part hereof.

Figure 1 is a perspective view of the machine with the mold and shaper or die in the mold. Fig. 2 is a front end view of Fig. 1. Fig. 3 is a perspective view of the die-block or mold. Fig. 4 is a side elevation of the die for shaping the pad to be used with the mold shown in Fig. 3. Fig. 5 is a perspective view of one of the boxes for holding the hair for packing into one of the molds. Fig. 6 is a perspective view of the box shown in Fig. 5 with the follower or compressor in position after the pad is packed. Fig. 7 is a plan view of the follow plate used in the boxes shown in Figs. 5 and 6, and on which the fasteners are clenched. Fig. 8 is a perspective view of the mold after having been packed showing the follow plates and the pins therein holding down the follow plate on top of the packing. Fig. 9 is a perspective view of the packed mold shown in Fig. 8 with the pins removed, the bur piece in position and the clamp for holding the bur piece on the packed pad and all in position for the leather or other cover of the pads to be fastened. Fig. 10 is a side view of a compressor block with which the lever engages to compress the packing into the mold. Fig. 11 is a perspective view on an enlarged scale, of the clamp for holding the pads and bur piece while the cover is being fastened on. Fig. 12 is a transverse vertical central section through the machine, mold and shaper as seen in Fig. 1. Figs. 13 and 14 are, respectively, a plan and longitudinal section of the completed pad.

Like characters of reference denote corresponding parts in each of the drawing.

Referring to the drawings, 2 designates the mold frame which is preferably cast in one piece with female molds 4 and 5, one at each end with a space 6 between. The molds 4 and 5 are hollowed out to conform to the shape desired for the harness pads. Through the sides of the mold frame on both sides are openings 8 for the purpose presently to appear.

For the purpose of shaping the leather or other material which forms the covering of the pads to conform to the shape of the molds 4 and 5, there is provided a compressor or male die 10 shown in Fig. 4. This die may be one piece of cast metal or of some other hard substance and formed with the two dies 12 and 14 of just the shape of the molds 4 and 5 in the mold frame 2. The upper portion terminates in a head 15 which may be flat on top or slotted so that when the lever arm, subsequently to be described, is brought down on the die 10, it will enter the slot and the sides of the slot will hold the die 10 perpendicular so that the pressure of the die 10 on the mold will be vertical.

For the purpose of readily and quickly compressing the hair or other packing into the molds 4 and 5, and also for rapidly gaging or measuring the amount of packing to be compressed into a mold, there is provided a box 16 of the form of a parallelogram having four vertical sides 18, 19, 20 and 21 which are rigidly united together. This box is substantially of the same size on its inside as one of the molds 4 or 5 and is adapted to set on a shoulder 22 in the frame 2. These boxes are made in duplicate, one for each of the molds 4 and 5 and preferably of the capacity for holding just the amount of loose packing required to fill a mold when compressed. In these boxes is placed just sufficient hair or other packing material to fill the pad to the desired consistency when the material is compressed and in order to compress the packing and hold it in the pad while the cover of the pad is secured around it, there is placed on the packing in the box a follow plate 25 preferably of metal shown in Fig. 7 which is about the size of the inside of the box 16. This follow plate serves, not only as a follow plate in compressing the packing, but with other appliances hereinafter mentioned holds down the packing in the mold and also serves as an anvil on which the fasteners of the cover of the pad are clenched. On the top of this follow plate 25 is placed a compressor block 26 shown in Fig. 10. The block has a base 28 of practically the size and shape of the plate 25 and the box 16. The top 30 of the block may be of the same size and shape as the base, but preferably the upper corners are cut away.

The machine for operating upon the die 10 and the block 26 is shown in Figs. 1 and 2 and consists of a block 32 set upon legs 34 which are stayed by braces 35. On the block 32 is placed a rectangular flat plate 33 upon which the mold frame 2 rests. At one end is

set a standard 36 to the top of which is pivoted a lever arm 38, having a handle 40. At the other end of the block 32 is secured another standard 42 which is bifurcated and between the two parts the lever 38 is adapted to be operated. Upon the lever arm 38 is pivoted a pawl 44 by the pivot pins 43 adapted to engage the ratchet teeth 45 on the standard 42. Near the top of the standard 42 is a hook or catch 46 in which the lever arm 38 rests when not in use.

The manner of operating our device is substantially as follows:—The leather or other outside wrapping for the pads is placed in the mold shown in Fig. 3 and upon this is placed the male die 10 with the dies 14 over the mold 5 and the die 12 over the mold 4 and this is placed in a bed upon the block 32, as shown in Fig. 1, and the operator grasps the handle 40 of the lever 38 and brings it down into the slot in the head 15 of the die 10. This forces the leather down into the molds 4 and 5; then the pawl 44 is brought into engagement with one of the notches or ratchets 45 on the upright 42 and holds the leather or cover in the molds 4 and 5 until it is properly shaped. When the leather has been fashioned until it will retain the form of the two molds 4 and 5, the die 10 is removed and there is placed over each of these molds, boxes 16 which are then filled with the hair 48 or other packing material and the follow plates 25, one for each box is placed on top of the packing. The operator then places the blocks 26 on the top of the plates 25 one for each box and the lever 38 is brought down upon the head 30 of the blocks 26. This presses the packing down into the molds 4 and 5. Then the operator inserts pins 50 through the holes 8 and through the leather 51 which project over the top of the plates 25 on each side of the frame 2 and as the boxes are cut away around the holes at 23, they will not in any manner interfere with the insertion of the pins 50. The lever 38 is then raised and the blocks 26 are removed and also the boxes 16, leaving the mold filled with the packing and the plates 25 with the pins 50 holding the packing in the molds as shown in Fig. 8. The operator then places on top of the plates 25 the usual bur piece 52 which extends the length of both of the molds and upon this a rigid bar of iron 54 which holds the pads with the plates 25 thereon and the mold 2 together by a clamp 55 (shown in Fig. 11), by inserting one arm 56 of the clamp in the hole 7 in the frame 2 and the other arm 58 over the top of the iron bar 54 and as the arms 56 and 58 of the clamp 55 are set at an angle to each other, they are adapted to adjust themselves to different thicknesses of the bur-piece, and when the clamp is adjusted, it will appear as shown in Fig. 9. The pins 50 are then removed, but the hair and the plates 25 and the bur piece 52 are still retained in the position as shown in Fig. 9 and ready to fasten the leather upon the bur piece 52 around the packing. The mold frame 2 with the packing and follow plate are removed from the block 32 and passed to a bench and there the leather is bent over and tacked on to the bur-piece. The tacks or fasteners when driven down through the leather and through the bur-piece come in contact with the steel plates 25 and are riveted or clenched upon said plates. The plates 25 serve as anvils or furnish means for clenching the fasteners of the cover of the pads. After the leather has been tacked upon the bur piece and the fasteners clenched upon the plates 25, the clamp 55 and the bar 54 are removed and also the plates 25 are drawn out from the ends of the pads and the pads are finished.

It will be seen that by the use of this device and this mode of operating the same, that the pads will be uniformly packed and will be finished rapidly. It will further be seen that the tacks or fasteners through the leather and bur piece will be so well clenched upon the plates 25, that there will be no danger of their being drawn out and the whole pad can be finished without any extra machinery or without the aid of any particularly skilled mechanic.

Having now described my invention what I claim is:—

1. In a device of the character described, a double mold for shaping both ends of a harness pad, a metallic follow plate for each side of the mold, a rigid bar spanning both said plates and clamp adapted to be passed transversely of the mold and bar for securing the follow plates in position.

2. In a device of the character described, a double mold for shaping both ends of a harness pad, there being a transverse depression at the middle of said mold and a transverse hole through the mold below said depression, a clamp having one arm fitted to said hole and the other adapted to extend transversely across the mold for holding material in the mold.

3. In a device of the character described, a double mold for shaping both ends of a harness pad, upwardly projecting flanges extending along the longitudinal edges of said mold and having apertures therethrough, pins fitted to said apertures, and follow plates for each end of the mold to be held temporarily in place by said pins.

4. In a device of the character described, a mold, a box over the mold provided with notches in the lower edges of its sides, a follow plate fitted to said box and to the mold, means for forcing the follower down upon packing in the mold and pins adapted to be passed through the edges of the mold and through said notches in the box for temporarily retaining the follower in place in the mold.

In testimony whereof we affix our signatures in presence of two witnesses.

MAURICE B. LEE.
C. HUGO GRINGS.

Witnesses:
M. M. CADY,
M. R. HEMMER.