Nov. 5, 1929. F. E. RIGHTMIRE 1,734,148

METHOD OF APPLYING ADHESIVE

Filed May 29, 1925

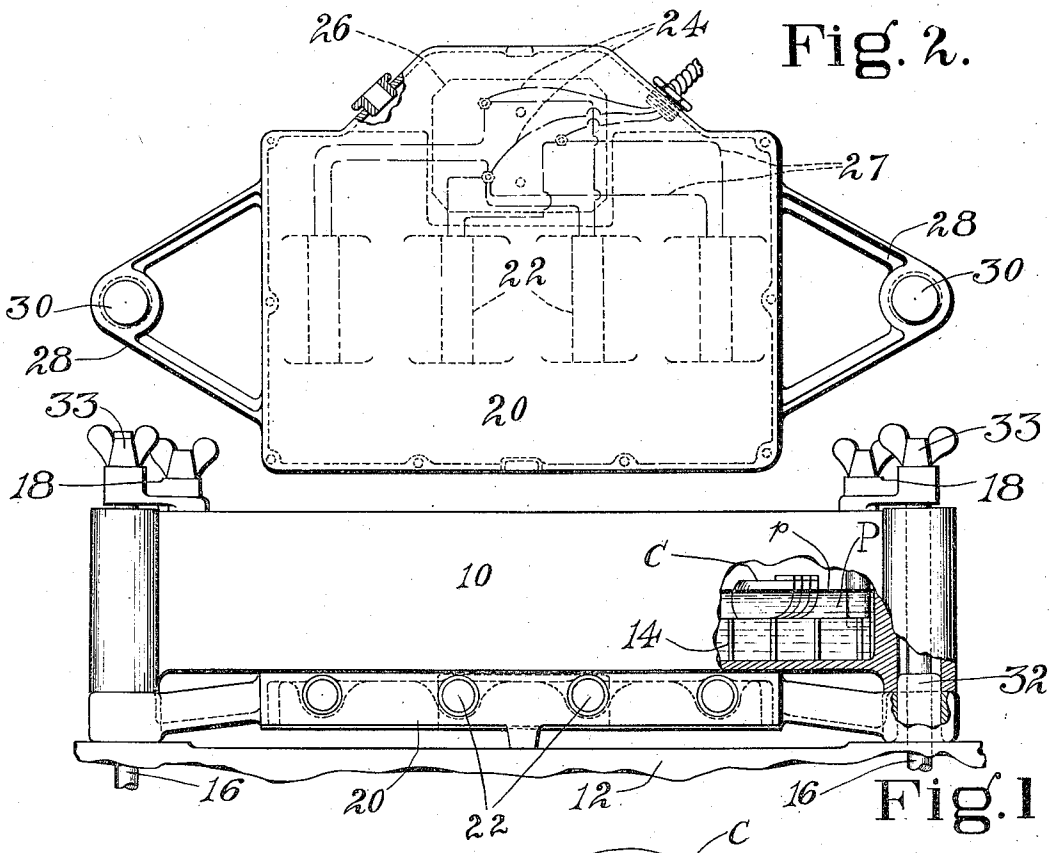
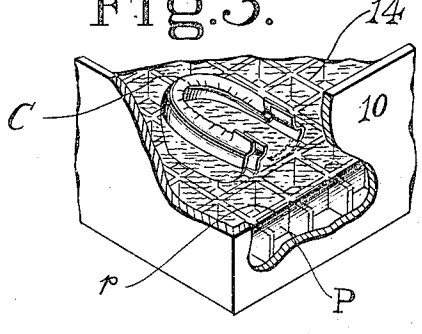


Fig. 2.

Fig. 1

Fig. 3.



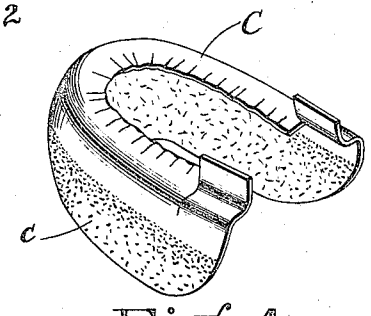


Fig. 4.

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UNITED STATES PATENT OFFICE

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METHOD OF APPLYING ADHESIVE

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My invention relates to the art of coating objects with an adhesive, it concerning especially the application of paste or the like to surfaces carrying a substance which tends to repel the adhesive, or to prevent its proper action. It is of particular utility in connection with the coating of certain grades of molded counters. In the manufacture of counters from such a leather-substitute as sheet-fiber, they may be molded in the form of the heel-portion of a shoe by pressure exerted by opposed dies. To reduce friction and prevent the dies from overheating, there is employed during this operation a lubricant, customarily paraffin, which is spread in a film upon the surface of the sheets. A considerable amount of the paraffin remains upon the completed counters, and when these are coated preparatory to their assembling with shoe-uppers, the paste is prevented from being taken up by or penetrating the fiber, and the adhesive effect is impaired. This is very noticeable when the coating is by the dipping process, in which there is no brushing of the paste into the work.

It is an object of my invention to destroy such interference with the adhesive action, and to this end, by my improved method, I simultaneously remove the interfering substance from the work and apply the adhesive coating. By this procedure, the desired result is attained without loss of time or increased effort, and with but slight added expense. When the counters or other work-portions carry such an adhesive-repelling solid as a paraffin, I cause its liquefaction to give the adhesive access to the objects, as by the application of heat, the temperature being sufficient to melt the paraffin. The preferred manner of accomplishing this is to heat the adhesive to the proper temperature, which I have found may suitably be about 160° F., and then to dip the objects with their coating in the heated adhesive, thereby dispersing the repellant coating by the heat of the adhesive itself. Since the specific gravity of this coating and the adhesive are different, paraffin being lighter than paste, they separate, the paraffin rising to form a layer upon the surface of the paste. This allows their ready separation at intervals, as by letting the paste cool and taking off the hardened sheet of paraffin.

In the accompanying drawing is illustrated the manner in which my improved method is given effect, and an apparatus for its performance.

Fig. 1 illustrates the apparatus in partial front elevation;

Fig. 2 is a top plan view of the heating device;

Fig. 3 shows, in broken perspective, a portion of the receptacle during the lubricant-removing and the coating operation; and

Fig. 4 is a perspective view of a counter coated by my method.

At C appears a molded counter, this carrying upon its surface a film of some adhesive-repelling solid substance as paraffin, which may be present as an incident to manufacture. It being desired to apply to this counter a coating of paste or other adhesive, this may be accomplished by dipping the portion which is to receive the coating to a suitable depth in a body P of paste contained in a receptacle 10 mounted upon a frame-portion 12. The preferred manner of immersion consists in placing a series of the counters, nested with one another but drawn out to give the adhesive better access to the walls, on such a support as a grid 14 movable in the receptacle. Vertical carrier-rods 16, 16 reciprocate through openings in opposite sides of the frame and receptacle, and have the grid mounted upon their upper extremities by over-hanging yokes 18. The series of counters are laid upon the grid in its elevated position when it is above the paste, and then the carrier-rods are depressed, as by treadle mechanism (not illustrated), carrying the grid with the counters into the paste. This movement is of sufficient extent to immerse the counters in the adhesive to coat the body-portions to the necessary height, this being, for example, as is illustrated in Fig. 4 of the drawings, where the coating *c* of paste appears. The carrier-rods and grid then being raised, the counters are removed and separated from one another for assembling with the shoe-uppers. The presence of the paraf-

fin, however, has heretofore prevented the paste during this operation from penetrating the fiber, so that the coating held upon the counter, when it emerges from the paste, is slight, and what there is gives little adhesion to the vamp and lining with which it is to be associated. To free the counter from the paraffin, I preferably heat the applied paste. For this purpose, there may be associated with the coating apparatus, between the frame and receptacle, an electrical device. This, as illustrated, is in the form of a plate 20 recessed to receive an appropriate number of electrical heating units 22. Supply-conductors 24 deliver the current to the units through a terminal block 26 and leads 27. Arms 28, 28, projecting from the ends of the plate and having at their outer extremities vertical openings 30, 30, fit over cylindrical bosses 32, 32 rising from the upper surface of the frame 12 at opposite sides, these bosses being perforated to receive and guide the rods 16. The length of the bosses is sufficient to carry them through the plate-arms and into openings in the receptacle, through which travel the rods 16. As a result of this arrangement, upon freeing the grid from the rods by removing nuts 33 threaded upon the upper ends of said rods, the receptacle may be lifted out of engagement with the bosses without disturbing the unit, and permitting both the grid and receptacle to be taken to any convenient point for washing away accumulated paste. By disconnecting the conductors 24 leading to the units, the heating device may also be raised from the bosses and over the rods 16, thus being entirely freed for removal. Reassembling of the parts is accomplished with equal ease and with assured accuracy. To units 22 are so designed as to raise the temperature of the contents of the receptacle to a point below that at which the paste is broken down or its adhesion affected, but which will promptly liquefy and disperse the paraffin when the counters are immersed in it. I have found approximately 160° F. to be a suitable degree of heat; but this may be varied to best meet the conditions encountered. The paraffin is thus separated from the counters by the heat stored up in the mass of adhesive, and the paste at the same time adheres to them, so that, as the grid is elevated in the receptacle, said counters carry substantially the same coating that they would were no paraffin present. The released lubricant, being of less specific gravity than the paste, and not readily miscible with it, rises to the surface, and gradually accumulates in a layer *p*, which in no way interferes with the coating operation. At intervals, as at the end of a working period when the heat is shut off and the paste chills, the paraffin will solidify and may be lifted in a sheet, leaving the paste unaffected. The paraffin is thus reclaimed, and may be utilized as desired.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. The method of coating objects carrying a substance interfering with adhesion, which consists in simultaneously removing from the objects the interfering substance and applying an adhesive coating.

2. The method of applying adhesive to objects carrying a coating of a normally solid substance, which consists in liquefying the coating by bringing together a coated object and a mass of preheated adhesive and thereby giving the adhesive access to the objects.

3. The method of coating with an adhesive an object carrying an adhesive-repelling substance, which consists in holding said object bearing such substance in adhesive heated to a temperature sufficient to melt the substance while the substance is dispersed and the adhesive substituted.

4. The method of coating with an adhesive an object carrying an adhesive-repelling substance, which consists in heating the adhesive, and applying the heated adhesive to the object bearing the repelling substance thereby to disperse the latter by means of heat supplied by the adhesive.

5. The method of applying an adhesive to objects carrying an adhesive-repelling substance, which consists in heating the adhesive to a temperature sufficient to melt such substance, and dipping the objects bearing the repelling substance in the heated adhesive, allowing the heated adhesive to melt the repelling substance.

6. The method of pasting counters coated with paraffin, which consists in heating paste to a temperature sufficient to melt paraffin, and dipping the counters in the heated paste.

7. The method of pasting counters coated with paraffin, which consists in heating paste to a temperature of approximately 160° F., and dipping the counters in the heated paste.

8. The method of applying an adhesive to objects carrying a substance of a specific gravity different from the adhesive, which consists in heating the adhesive to a temperature sufficient to melt the substance, dipping the objects in the heated adhesive to separate the substance from the objects and apply the adhesive, and at intervals separating the adhesive and accumulated substance.

9. The method of applying an adhesive to objects carrying a normally solid substance having a less specific gravity than the adhesive, which consists in heating the adhesive to a temperature sufficient to melt the substance, dipping the objects in the heated adhesive to disperse the solid substance as an incident to the application of the adhesive, permitting the substance to separate and accumulate in a layer on the surface of the adhesive, allowing the layer to solidify at inter-

vals, and removing the layers from the adhesive.

10. The method of applying paste to counters coated with paraffin, which consists in heating the paste to approximately 160° F., dipping the counters in the heated paste, permitting the melted paraffin to accumulate upon the surface of the paste, allowing the paste to cool at intervals and the paraffin to solidify, and removing the sheets of paraffin from the paste.

In testimony whereof I have signed my name to this specification.

FLOYD E. RIGHTMIRE.