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# United States Patent [19]

Andersen

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[54] METHOD FOR MAKING A FRAMELESS ACOUSTIC COVER PANEL

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[56] References Cited

U.S. PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 1,438,966 | 12/1922 | Perry . | |
| 2,363,323 | 11/1944 | Hill | 154/2.6 |
| 3,307,990 | 3/1967 | Homier et al. | 156/72 |
| 3,328,927 | 7/1967 | Kates | 52/65 |
| 3,408,239 | 10/1968 | Wedin | 156/62.8 |
| 3,428,506 | 2/1969 | Johnstone | 156/148 |
| 3,706,171 | 12/1972 | Shayman | 52/475 |
| 3,831,330 | 8/1974 | Tacke et al. | 52/220 |
| 3,993,828 | 11/1976 | McCorsley, III | 428/236 |
| 4,123,879 | 11/1978 | Blodee et al. | 52/36 |
| 4,135,341 | 1/1979 | Johnson et al. | 52/316 |
| 4,144,924 | 3/1979 | Vanden Hoek | 160/231 |
| 4,169,176 | 9/1979 | Hartmann et al. | 428/95 |
| 4,199,635 | 4/1980 | Parker | 428/95 |
| 4,219,598 | 8/1980 | Noma et al. | 428/161 |
| 4,251,104 | 2/1981 | Holt | 29/401.1 |
| 4,258,093 | 3/1981 | Benedyk | 428/85 |
| 4,277,531 | 7/1981 | Picone | 428/228 |
| 4,282,283 | 8/1981 | George et al. | 428/228 |
| 4,302,499 | 11/1981 | Crisch | 428/236 |
| 4,307,145 | 12/1981 | Goldman | 428/247 |
| 4,359,132 | 11/1982 | Parker et al. | 181/169 |
| 4,373,001 | 2/1983 | Smith et al. | 428/212 |
| 4,391,865 | 7/1983 | Constance | 428/74 |
| 4,424,250 | 1/1984 | Adams et al. | 428/198 |
| 4,432,822 | 2/1984 | Adams et al. | 156/148 |
| 4,445,954 | 5/1984 | Adams et al. | 156/148 |
| 4,474,840 | 10/1984 | Adams | 428/71 |
| 4,491,617 | 1/1985 | O'Connor et al. | 428/236 |
| 4,515,848 | 5/1985 | Leunig et al. | 428/172 |
| 4,581,272 | 4/1986 | Walters et al. | 428/88 |
| 4,635,410 | 1/1987 | Chumbley | 52/63 |
| 4,726,987 | 2/1988 | Trask et al. | 428/282 |
| 4,744,189 | 5/1988 | Wilson | 52/511 |

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[57] ABSTRACT

A formed panel construction and method are provided for portable acoustic partitions of the type which are assembled and configured to create workstations in open office plans. Each partition panel includes a free-standing, open frame with a pair of formed cover panels detachably connected to the opposite sides of the frame to enclose the partition. Each cover panel comprises a laminated composite sheet, which includes a sound absorbant backing sheet constructed from heat fusible fibers, and an overlying upholstery sheet with a finished exterior surface. The composite sheet is heated to soften or plasticize the heat fusible fibers, and is compressed and molded while heated to a predetermined geometrically solid shape, such as a five-sided panel having a flat face and four marginal flanges extending at an angle therefrom. The heat and compression process interconnects the various layers of the composite sheet, and the molded shape creates a one-piece, frameless acoustic cover panel with a stiffness or rigidity which facilitates manual handling, and suspension attachment to the frame without sagging.

**39 Claims, 8 Drawing Sheets**