Jan. 15, 1957 J. H. CARTER 2,777,724

FILTER PAD PICK-UP DEVICE

Filed Nov. 24, 1952

Fig. 4

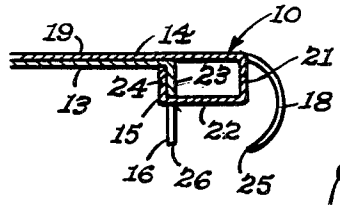


Fig. 1

Fig. 3

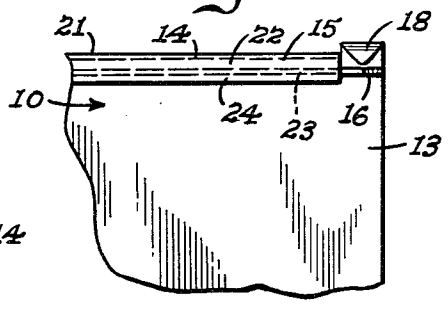
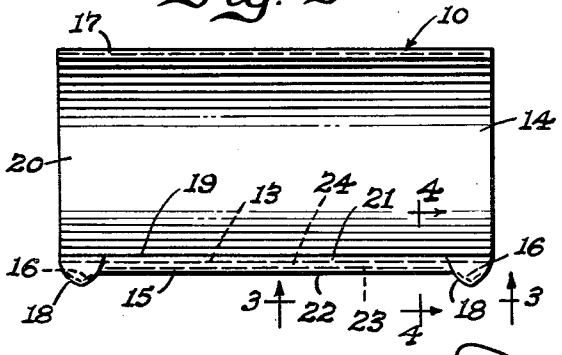


Fig. 2



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FILTER PAD PICK-UP DEVICE

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16 Claims. (Cl. 294—25)

This invention relates to a pickup device designed for use with soft paper sheet material, and more particularly filter pads or disks.

The present device is designed for use by a farmer in the milk house when he brings in pails of milk to be filtered in accordance with the laws of certain states. The strainers provided for this purpose use filter pads which come in packages, and the sanitary handling of these pads presents a serious problem, because the farmer's hands are dirty from milking and unless the filter pad can be placed in the strainer in the clean condition that it comes from the package, the milk will surely be contaminated. The pickup device of my invention enables the farmer easily and speedily to pick up a filter pad and place it in the strainer without touching the pad.

I am aware that pickup devices have been proposed heretofore for the purpose mentioned but it is my belief that they were two complicated and expensive in construction in relation to the simple operation to be performed and were objectionable because of the likelihood of damaging the pads. It is accordingly the principal object of the present invention to provide a pickup device of simpler and more economical construction and one that is designed to take full advantage of the softness and pliability of the cotton batting by taking hold of the pad at widely spaced points by gathering the material at each of these points and gripping the gathered material, thereby avoiding the necessity of piercing or otherwise damaging the pads.

Another object is to provide a device of the kind mentioned in which stationary gripping jaws are provided on the opposite ends of a bottom plate, and movable jaws are provided in outwardly spaced relation to the stationary jaws on the outer ends of outwardly projecting end portions of a U-shaped spring that also serves as a handle for operating the movable jaws in gripping the paper and as a handle for lifting the device and the filter pad with it, the device therefore consisting essentially of only two parts which may be easily secured together at the opposite ends of the bottom plate where the outwardly projecting end portions of the spring are guided for sliding movement to maintain the movable jaws in proper relationship to the stationary jaws.

The invention is illustrated in the accompanying drawing, in which—

Fig. 1 is a perspective view of a pickup device made in accordance with my invention;

Fig. 2 is an end view;

Fig. 3 is a bottom view of one corner of the device, and

Fig. 4 is an enlarged sectional detail on line 4—4 of Fig. 2.

The same reference numerals are applied to corresponding parts throughout the views.

Referring to the drawing, the reference numeral 10 designates the pickup device of my invention generally and 11 is a filter pad or disk adapted to be picked up off a stack of like pads in a package by bunching or gathering together a certain amount of the cotton batting at widely spaced points, as indicated at 12 in Fig. 4, and taking hold of the pad by these puckered portions to lift it off the stack. In this way the farmer coming into the milk house with pails of milk to be filtered does not have to wash his hands first in order to pick up a filter pad and place it in the strainer. The novel construction of the device 10 enables gathering the soft material and pinching it at the points 12 without likelihood of damage to the pad.

The device 10 consists essentially of only two parts 13 and 14 slidably connected together at two points, as indicated at 15. The part 13 is a sheet metal frame member or bottom plate of rectangular form having downwardly bent end portions 16 which serve both as supporting feet or legs for the plate 13 and as stationary or fixed gripping jaws toward which the gathers 12 of the pad are made. 14 is an inverted U-shaped leaf spring sufficiently elongated to provide a convenient handle 17 for lifting a pad off the top of a stack and also to serve as the actuating means for the movable jaws 18 that cooperate with the stationary jaws 16 to form the gathers 12 and grip them. The jaws 18 are formed by downwardly and inwardly bent extremities of the outwardly bent lower end portions 19 of the legs 20 of the U-shaped spring 14. The portions 19 are slidable on the opposed end portions of the plate 13 and have downwardly bent portions 21 between the jaws 18 which have their lower end portions 22 bent inwardly in spaced parallel relation to portions 19 and slidable under the downwardly bent end portions 23 of the plate 13 between the jaws 16, the extremities of portions 22 being bent upwardly, as at 24, behind portions 23 to complete the connection which limits inward and outward movement of jaws 18 relative to jaws 16.

In operation, the legs 20 of the spring 14 are adapted to be flexed toward each other between the thumb and fingers of one hand, as shown in Fig. 1, to move the jaws 18 inwardly so as to gather the material of the pad in the manner indicated at 12 and grip these gathers to enable picking up the pad. The pad will, of course, be stiffened transversely by the gathers 12 and, therefore, can easily be placed flat in the strainer. Jaws 16 are in the form of triangular projections on the opposite ends of portions 23 of plate 13, as best appears in Fig. 2. They are therefore just sharp enough to bite into the soft material of the pad 11 at the four corners of the device when it is placed on top of a stack of pads. Sharpened prongs or prick points 25 are provided on the jaws 18 projecting slightly below the plane of the pad engaging ends 26 of the fixed jaws 16 to insure taking a good bite into the soft material of the pad, and these prick points are preferably directed inwardly toward the jaws 16 to the extent indicated in Fig. 4 to facilitate gathering the material in the manner described, without, however, piercing or otherwise damaging the same.

The operation is believed to be clear from Fig. 1. The device is simply placed on top of the stack of filter pads in the package and the prick points 25 on the jaws 18 are impressed to the slight extent permitted by their extension below the plane of the points 26 on the stationary jaws 16. Hence, when the legs 20 of the leaf spring are flexed toward each other, the material is gathered, as indicated at 12, and these gathers are gripped between jaws 16 and 18 and the topmost pad can therefore be lifted off the stack and placed in a strainer. The moment the closing pressure on the legs 20 of the leaf spring 14 is released, the filter pad is freed and the device can be removed without any danger of the pad tending to stick to it. The slight impressions made by the prick points 25 is not enough to damage the filter pad nor is there any noticeable strain imposed upon the material by reason of the gripping of the gathered material in the manner illustrated and described.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn to cover all legitimate modifications and adaptations.

I claim:

1. In combination, a flat filter pad or the like suitably supported in flat condition, and a pickup device comprising an elongated frame member that is small in area in relation to the pad having downwardly projecting portions on opposite ends defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane resting on top of the pad leaving marginal portions outwardly therefrom loose, inwardly movable pickup jaws disposed in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and having portions mounted on opposite ends of said frame member guiding the movable jaws for movement toward the fixed jaws, whereby the cooperating jaws are adapted to gather loose portions of the paid therebetween and grip the same to permit lifting the pad with the frame member, and means for operating said movable jaws.

2. A pickup device as set forth in claim 1 wherein the fixed jaws are pointed at the pad engaging ends thereof, but the movable jaws have prick points thereon projecting slightly below the plane of the pad engaging ends of the fixed jaws adapted to take hold of the pad.

3. In combination, a flat filter pad or the like suitably supported in flat condition, and a pickup device comprising an elongated frame member that is small in area in relation to the pad having downwardly projecting portions on opposite ends defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane resting on top of the pad leaving marginal portions outwardly therefrom loose, inwardly movable pickup jaws disposed in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and having portions mounted on opposite ends of said frame member guiding the movable jaws for movement toward the fixed jaws, whereby the cooperating jaws are adapted to gather loose portions of the paid therebetween and grip the same to permit lifting the pad with the frame member, and an elongated U-shaped spring disposed inverted over the frame member and having the lower ends of the arms thereof connected with said movable jaws and normally urging the same to one extreme position relative to the fixed jaws, said spring being adapted to serve as a handle for lifting the frame member.

4. A pickup device as set forth in claim 3 wherein the fixed jaws are pointed at the pad engaging ends thereof, but the movable jaws have prick points thereon projecting slightly below the plane of the pad engaging ends of the fixed jaws adapted to take hold of the pad.

5. A pickup device for filter pads and the like comprising an elongated frame member having downwardly projecting portions on opposite ends defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, movable pickup jaws disposed in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and having portions mounted on opposite ends of said frame member guiding the movable jaws for movement toward the fixed jaws while engaged adjacent the latter on top of a pad, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, and an elongated U-shaped spring disposed inverted over the frame member and having the lower ends of the arms thereof connected with said movable jaws and normally urging the same outwardly away from the fixed jaws, said arms being adapted to be flexed toward each other to close the jaws, and said spring being adapted to serve as a handle for lifting the frame member.

6. A pickup device for filter pads and the like comprising an elongated frame member having downwardly projecting portions on opposite ends defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, and an elongated U-shaped spring disposed inverted over the frame member and having outwardly bent lower end portions of the arms thereof slidably connected to the opposite end portions of said frame member and projecting outwardly beyond the ends and having downwardly bent portions defining movable pickup jaws in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and arranged to engage the top of a pad adjacent the fixed jaws when the latter are so engaged, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, said spring normally urging the movable jaws to one extreme position relative to the fixed jaws, said spring being adapted to serve as a handle for lifting the frame member.

7. A pickup device as set forth in claim 6 wherein the fixed jaws are pointed at the pad engaging ends thereof, but the movable jaws have prick points thereon projecting slightly below the plane of the pad engaging ends of the fixed jaws adapted to take hold of the pad.

8. A pickup device for filter pads and the like comprising an elongated frame member having downwardly projecting portions on opposite ends defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, and an enlongated U-shaped spring disposed inverted over the frame member and having outwardly bent lower end portions of the arms thereof slidably connected to the opposite end portions of said frame member and projecting outwardly beyond the ends and having downwardly bent portions defining movable pickup jaws in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and arranged to engage the top of a pad adjacent the fixed jaws when the latter are so engaged, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, said spring normally urging the movable jaws outwardly away from the fixed jaws, the arms of said spring being adapted to be flexed toward each other to close the jaws, and said spring being adapted to serve as a handle for lifting the frame member.

9. A pickup device for filter pads and the like comprising a rectangular frame member having downwardly projecting portions on the four corners defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, movable pickup jaws disposed in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and portions having mounted on opposite ends of said frame member guiding the movable jaws for movement toward the fixed jaws while engaged adjacent the latter on top of a pad, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, and means for operating said movable jaws.

10. A pickup device as set forth in claim 9 wherein the fixed jaws are pointed at the pad engaging ends thereof, but the movable jaws have prick points thereon projecting slightly below the plane of the pad engaging ends of the fixed jaws adapted to take hold of the pad.

11. A pickup device for filter pads and the like comprising a rectangular frame member having downwardly projecting portions on the four corners defining fixed pick-

up jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, movable pickup jaws disposed in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and having portions mounted on opposite ends of said frame member guiding the movable jaws for movement toward the fixed jaws while engaged adjacent the latter on top of a pad, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, and an elongated U-shaped spring disposed inverted over the frame member and having the lower ends of the arms thereof connected with said movable jaws and normally urging the same to one extreme position relative to the fixed jaws, said spring being adapted to serve as a handle for lifting the frame member.

12. A pickup device for filter pads and the like comprising a rectangular frame member having downwardly projecting portions on the four corners defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, movable pickup jaws disposed in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and having portions mounted on opposite ends of said frame member guiding the movable jaws for movement toward the fixed jaws while engaged adjacent the latter on top of a pad, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, and an elongated U-shaped spring disposed inverted over the frame member and having the lower ends of the arms thereof connected with said movable jaws and normally urging the same outwardly away from the fixed jaws, said arms being adapted to be flexed toward each other to close the jaws, and said spring being adapted to serve as a handle for lifting the frame member.

13. A pickup device for filter pads and the like comprising a rectangular frame member having downwardly projecting portions on the four corners defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, and an elongated U-shaped spring disposed inverted over the frame member and having outwardly bent lower end portions of the arms thereof slidably connected to the opposite end portions of said frame member and projecting outwardly beyond the ends and having downwardly bent portions defining movable pickup jaws in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and arranged to engage the top of a pad adjacent the fixed jaws when the latter are so engaged, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, said spring normally urging the movable jaws to one extreme position relative to the fixed jaws, said spring being adapted to serve as a handle for lifting the frame member.

14. A pickup device for filter pads and the like comprising a rectangular frame member having downwardly projecting portions on the four corners defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, and an elongated U-shaped spring disposed inverted over the frame member and having outwardly bent lower end portions of the arms thereof slidably connected to the opposite end portions of said frame member and projecting outwardly beyond the ends and having downwardly bent portions defining movable pickup jaws in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and arranged to engage the top of a pad adjacent the fixed jaws when the latter are so engaged, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, said spring normally urging the movable jaws outwardly away from the fixed jaws, the arms of said spring being adapted to be flexed toward each other to close the jaws, and said spring being adapted to serve as a handle for lifting the frame member.

15. A pickup device for filter pads and the like comprising a rectangular frame member having downwardly projecting portions on the four corners defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, the end portions of the frame member being bent downwardly to provide a wall between the jaws on each end, and an elongated U-shaped spring disposed inverted over the frame member and having outwardly bent lower end portions of the arms thereof projecting outwardly beyond the ends of the frame member and having downwardly bent portions defining movable pickup jaws in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and arranged to engage the top of a pad adjacent the fixed jaws when the latter are so engaged, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, the outwardly bent lower end portions of the spring having downwardly bent end portions between the pickup jaws which have inwardly bent lower end portions slidable under the downwardly bent end portions of the frame member between the fixed jaws, the inner ends of the inwardly bent lower end portions being bent upwardly behind the downwardly bent end portions of the frame member to complete the connections of the spring with the frame member, said spring normally urging the movable jaws to one extreme position relative to the fixed jaws, said spring being adapted to serve as a handle for lifting the frame member.

16. A pickup device for filter pads and the like comprising a rectangular frame member having downwardly projecting portions on the four corners defining fixed pickup jaws having work engaging bottom extremities in substantially coplanar relationship in a horizontal plane adapted to be placed on top of a pad to be picked up, the end portions of the frame member being bent downwardly to provide a wall between the jaws on each end, and an elongated U-shaped spring disposed inverted over the frame member and having outwardly bent lower end portions of the arms thereof projecting outwardly beyond the ends of the frame member and having downwardly bent portions defining movable pickup jaws in outwardly spaced relation to said fixed jaws having work engaging bottom extremities in substantially the same horizontal plane with said fixed jaws and arranged to engage the top of a pad adjacent the fixed jaws when the latter are so engaged, whereby the cooperating jaws are adapted to gather loose portions of the pad therebetween and grip the same to permit lifting the pad with the frame member, said spring normally urging the movable jaws outwardly away from the fixed jaws, the arms of said spring being adapted to be flexed toward each other to close the jaws, and said spring being adapted to serve as a handle for lifting the frame member.

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