United States Patent [19]

Nehls

[11] **3,773,375**

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[54] **SNOW REMOVAL DEVICE**

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[51] **Int. Cl.** **E01h 5/02**

[58] **Field of Search** ..... 294/19 R, 53.5, 54, 294/57; 37/53; 56/400.04, 400.05; 306/2, 6, 10, 12

[56] **References Cited**

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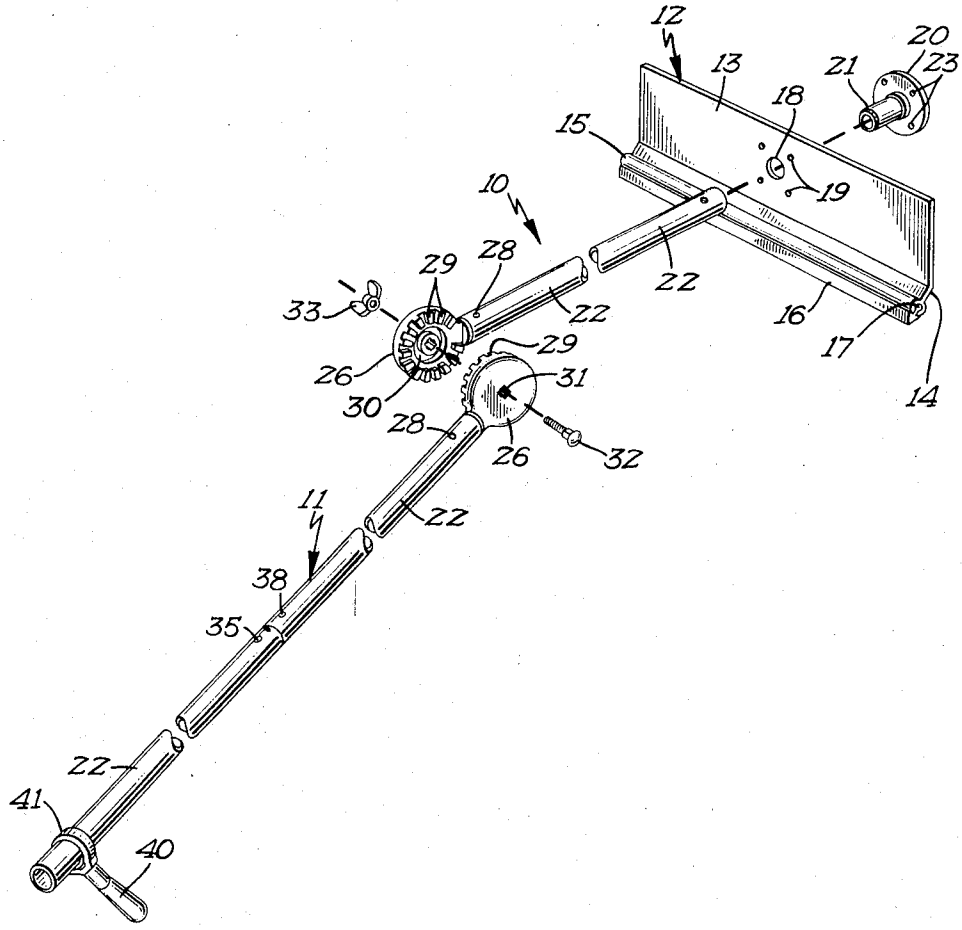
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Assistant Examiner—Johnny D. Cherry
Attorney—George F. Williamson et al.

[57] **ABSTRACT**

A snow removal device for removing snow from roofs comprises a blade connected to a sectional handle. A pair of the handle sections are interconnected together by coupling members which permit angular adjustment between the sections. Each coupling member is provided with a plurality of teeth which interlock with teeth on the other coupling member thereby permitting a wide range of adjustment between the respective handle sections. By angularly adjusting the sections, the blade may be positioned in proper relation with respect to the surface of the roof, thereby permitting the snow to be removed from the roof in a highly effective manner while the user is standing on the ground.

2 Claims, 6 Drawing Figures



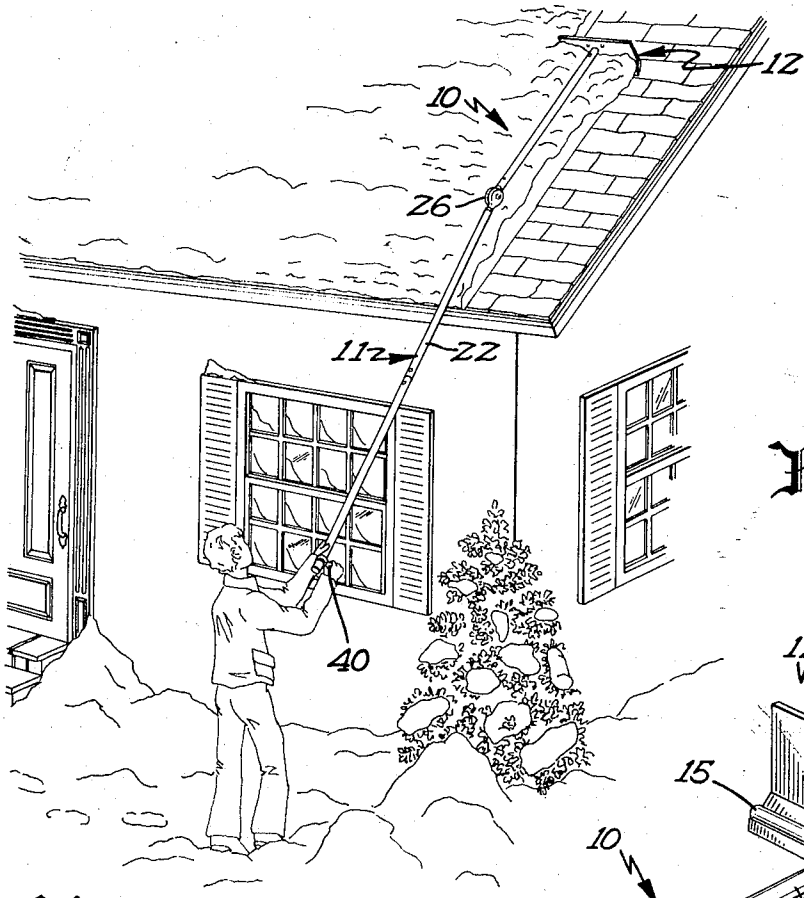


Fig 1

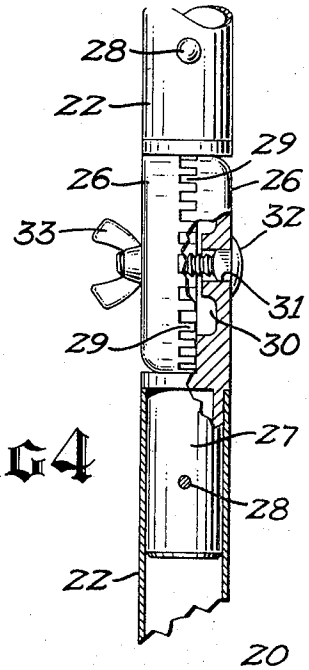


Fig 4

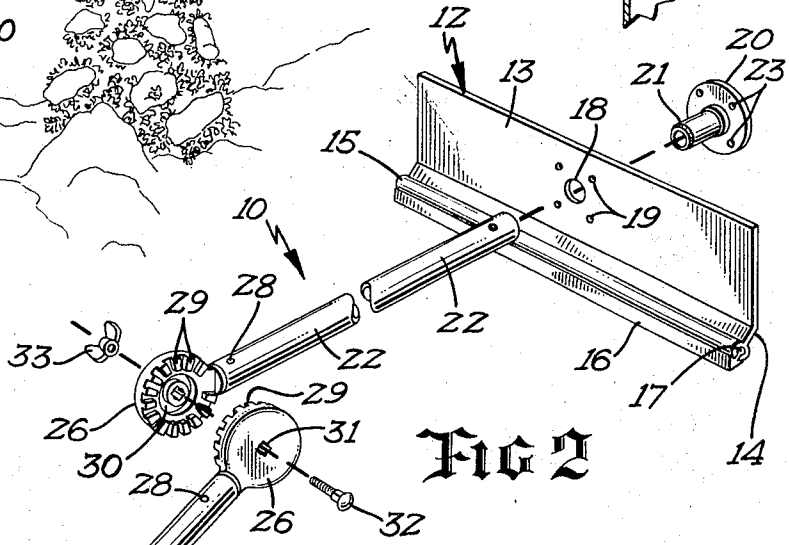


Fig 2

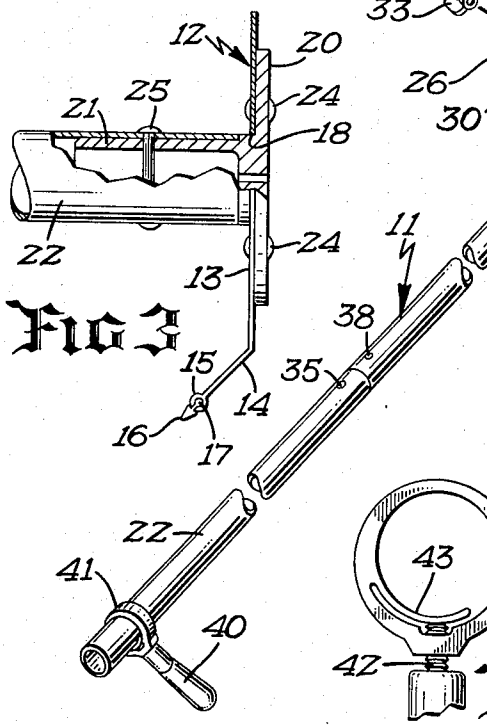


Fig 3

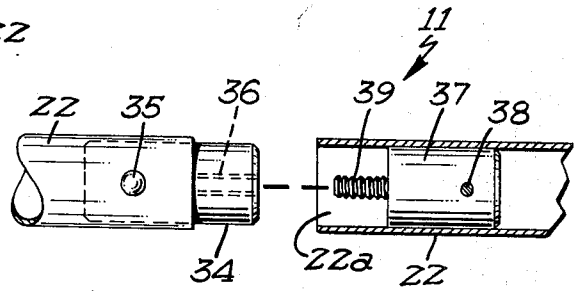


Fig 5

Fig 6

SNOW REMOVAL DEVICE

SUMMARY OF THE INVENTION

It is generally desirable and often times necessary for residents in areas where there is heavy snow fall to remove the snow from the roofs of their houses. Snow rakes have been developed which have long handles and which permit a user to stand on the ground and remove the snow from the roof with a raking action. However, it is difficult for a user to maintain the blade of the snow removal device at the proper angle with respect to the roof surface as the user rakes the snow from the roof.

It is therefore a general object of this invention to provide a novel snow removal device which includes a blade connected to an angularly adjustable sectional handle. At least two of the handle sections of the handle are interconnected toether by coupling members each having a plurality of teeth which interlock with the teeth on the other coupling member. With this arrangement, these handle sections may be adjusted angularly with respect to each other and this permits the blade of the snow removal device to be maintained in proper relationship with respect to the roof surface. The number of handle sections used naturally determines the overall length of the sectional handle, and angular and length adjustments permit a user to very efficiently remove snow from roofs of various sizes and inclinations.

These and other objects and advantages of this invention will more fully appear from the following description made in connection with the accompany drawings wherein like reference characters refer to the same or similar parts throughout the several views.

BRIEF DESCRIPTION OF THE FIGURES OF THE DRAWINGS

FIG. 1 is a perspective view of the novel snow removal device illustrating a manner of use of the device;

FIG. 2 is an exploded perspective view of the novel removal device foreshortened for clarity and illustrating the details of construction thereof;

FIG. 3 is a side elevational view of one end portion of the device with certain parts thereof broken away and illustrating the details of construction of the blade;

FIG. 4 is a fragmentary elevational view of the coupling members which interconnects a pair of handle sections together with certain parts thereof broken away for clarity;

FIG. 5 is a fragmentary side view of the end portions of a pair of handle sections partly in section and partly in elevation with the handle sections being illustrated in an uncoupled condition; and

FIG. 6 is a fragmentary side elevational view of a portion of the hand grip member which is attached to one of the handle sections.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings and more specifically to FIGS. 1 and 2 it will be seen that one embodiment of the novel snow removal device, designated generally by the reference numeral 10, is thereshown. This snow removal device includes an elongate sectional handle 11 which has a snow removal blade 12 secured to the forward end thereof.

Referring now to FIGS. 2 and 3, it will be seen that the blade 12, preferably formed from a rigid metallic material such as aluminum or the like, includes a flat upper portion 13 which is integrally formed with an angular lower portion 14. The angular lower portion has an elongate longitudinally extending socket member 15 integrally formed therewith and this socket member receives a removable edge member 16 which is preferably formed of a yieldable material such as rubber or the like. This edge member 16 is provided with a socket engaging portion 17 that snugly engages in the socket of the socket member 15.

The upper flat portion of the blade has a relatively large opening 18 therein and also has a plurality of smaller openings 19 therein adjacent the larger opening 18. A generally circular flat plate 20 is provided with a sleeve or port 21 integrally formed therewith and projecting axially from the central portion thereof. The plate 20 is positioned against the blade and the post projects through opening 18 therein and is received within the hollow interior of one of the handle sections 22.

In this regard, the handle sections 22 are of elongate hollow cylindrical construction and each is formed of a suitable metallic material, preferably aluminum. The circular plate 20 also has a plurality of openings 23 therein which are disposed in registering relation with the smaller openings 19 in the blade 12 and accommodate rivets 24 therethrough to secure the blade to the plate 20. The post 21 which is received within one of the handle sections 22 is secured thereto by a suitable rivet 25, although any suitable means such as a bolt or the like may also be used.

One of the important features of the present invention is the angular adjstment of the sectional handle 11. To this end, a pair of generally circular flat coupling members 26 are each secured to one of the handle sections 22 and each coupling member is provided with an elongate shank or cylindrical portion 27 projecting therefrom and received within the hollow end portion of the adjacent handle section. A rivet 28 secures the shank of one of the coupling members to its associated handle section 22.

Each coupling member 26 is provided with a plurality of spaced apart peripheral teeth 29 which are arranged in a circular manner and which generally project axially from the coupling member. Each coupling member also has an annular recess 30 positioned radially interiorly of the peripheral teeth 29, and the central portion of each coupling member has a rectangular shaped opening 31 therethrough. The openings 31 in the coupling members receive the shank of a bolt 32 which is threadedly engaged by a wing nut 33. The rectangular shape of the opening 31 accommodates the rectangular shoulder portion of the bolt 32 to prevent rotation of the bolt when the wing nut is applied to the threaded shank thereof.

With this arrangement, it will be seen that by loosening the wing nut 33, the angular disposition between the pair of the handle sections may be readily adjusted by shifting the coupling members with respect to each other. In each new position, the interlocking relationship of the teeth of the coupling members prevents any movement between the handle sections with respect to their adjusted position.

In the present embodiment, three handle sections are shown, although any number of handle sections may be used to permit selection of the desired length. Referring now to FIG. 5, it will be seen that means for inter-

connecting the adjacent sections together is there shown. To this end, it will be seen that each handle section **22** has a cylindrical connecting member **34** secured to one end thereof and each connecting member **34** has a portion thereof which extends interiorly of the associated handle section and is secured therein by a suitable rivet **35**. Each connecting member is provided with a threaded socket **36**. Each handle section also has a cylindrical connecting member **37** which is positioned interiorly of the other end thereof and is secured therein by a suitable rivet **38**. The connecting member **37** is provided with an axially projecting male threaded element **39** which projects from the associated connecting member **37** but which is positioned interiorly of the associated handle section. This male threaded element **39** is adapted to threadedly engage in the socket **36** of the coupling member **34**. It will be noted that that portion of the coupling member **34** positioned exteriorly of its associated handle section **22** is of a size to be nicely accommodated in the space defined between the coupling member **37** and the exterior of the associated handle section. This space in the handle section containing the coupling member **37** has been designated **22a**, as best seen in FIG. **5**. It will be therefore seen that each of the handle sections which does not have a coupling member **26** secured thereto will have connecting member **34** secured to one end thereof.

The handle section located most remotely from the blade **12** may be provided with a suitable hand grip member **40** adjacent its outer end to facilitate operation of the snow removal device. It will be noted that the hand grip **40** projects at substantially right angular relationship to the associated handle section **22** and is connected to a connecting ring **41** by a threaded stud **42** which threadedly engages in a threaded bore formed in the connecting ring. The thrreaded stud **42** bears against an annular flap **43** integrally formed with the connecting ring **41** and positioned interiorly thereof and this clamping flap **43** is adapted to clamp against the end of the associated handle section when the hand grip member **40** is tightened.

In use, a user desiring to remove snow from a roof will adjust the angular relation between those handle sections **22** provided with the coupling members **26**. The angular adjustment is made so that the blade may be properly oriented with respect to the surface of the roof during the raking action. The snow removal device may be provided with as many extensions of the handle sections as desired to effectively remove the snow from the roof. It will be seen that the sectional handle may be angularly adjusted to orient the blade in proper relationship to the roof surface regardless of the angle or the absence of an angle which the surface of the roof defines.

In this regard, it will be noted that the sectional handle may be angularly adjusted through an arc exceeding 270° if desired. Under most circumstances, the angular adjustment between the handle sections to properly orient the blade will usually be less than 45° with respect to a straight or non-angular relationship. However, in some instances it will be necessary to adjust the angle in excess of **45°** but as shown, this may be readily accomplished.

The yieldable scraper edge member **15** permits effective scraping of the roof while minimizing any damage to the surface thereof, especially shingles. Further, this edge member **16** may be replaced if it becomes damaged or worn.

From the foregoing description it will be seen that I have provided a novel snow removal device which, because of its unique angularly adjustable sectional handle, permits a user to very effectively scrape or rake the snow from a roof surface regardless of the angle or inclination of the roof. The unique construction of the coupling connection between the angularly adjustable handle sections permit ready and easy adjustment thereof but provides a very efficient strong connection between these sections.

Thus it will be seen that I have provided a snow removal device, which is not only of simple and inexpensive construction, but one which functions in a more efficient manner than any heretofore known comparable device.

What is claimed is:

1. A snow removing device comprising

a substantially flat, generally rectangular blade having an opening in the central portion thereof and having a lower portion disposed in angulated relation with respect to the general plane of the blade, said blade being constructed of a substantially rigid material, an elongate scraping edge member detachably mounted on the lower portion of said blade and being formed of a yieldable material, 'an elongate sectional handle comprised of a plurality of interconnected elongate generally tubular handle sections, means securing said blade to one end of one of said handle sections,

a pair of cooperating adjustable coupling members, one of which is connected to one end of one section and the other coupling member being connected to one end of another handle section, each coupling member having a plurality of spaced apart interlocking teeth arranged in a circular pattern, each tooth on one coupling member being disposed between and engaging a pair of teeth on the other coupling member whereby said coupling members may be variously adjusted with respect to each other to permit angular adjustment of the handle sections with respect to each other through an arc exceeding 180°,

means releasably securing the coupling members together in a selected adjusted position,

certain of said handle sections having a pair of connecting members on opposite ends thereof, one of said connecting members including a male threaded connecting element positioned interiorly of the associated handle section and extending longitudinally thereof, and the other of said connecting members including a female socket element projecting exteriorly and longitudinally of the associated handle section and releasably engaging a male coupling element on the adjacent handle section, a hand grip member, a mounting ring detachably secured to one of said handle sections and being detachably secured to said hand grip member to detachably mount the latter on said one handle section to project generally at right angles thereto.

2. The snow removal device as defined in claim **1** wherein said blade securing means comprises a substantially flat plate, a post affixed to said plate and projecting therefrom through the opening in said blade and telescopically into the end of one of said tubular handle sections, and means securing said plate against the central portion of said blade and securing said post to said last mentioned one handle section.

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