

Sept. 4, 1923.

J. M. RAUHOFF

1,467,115

BROOM

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*Fig. 1.*



*Fig. 3.*

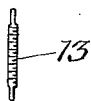


*Fig. 4.*

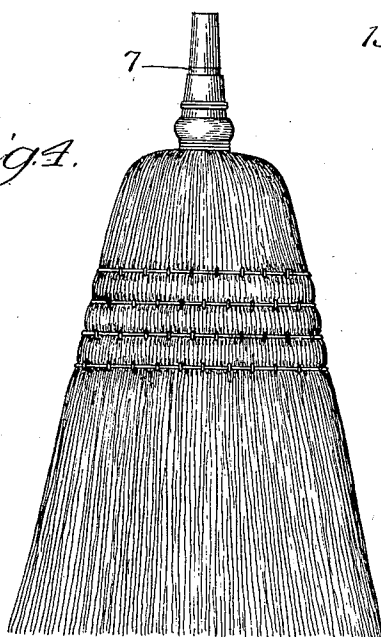


*Fig. 2.*

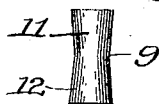
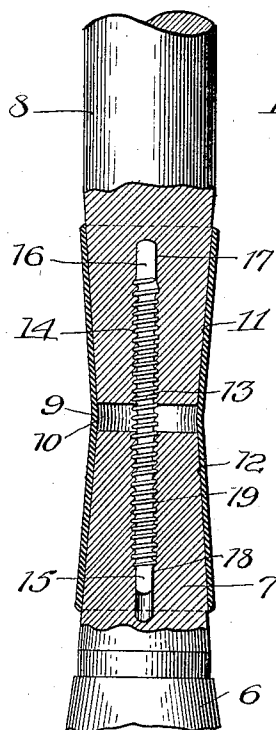


*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

JOHN M. RAUHOFF, OF TINLEY PARK, ILLINOIS.

## BROOM.

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*To all whom it may concern:*

Be it known that I, JOHN M. RAUHOFF, a citizen of the United States, residing at Tinley Park, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Brooms, of which the following is a specification.

The universal practice in the manufacture of brooms is to form the broom with an integral handle portion to one end of which the straws forming the head of the broom are directly attached, as by binding them thereto by wire, thus making the structure a unitary one and necessitating the practice of discarding the entire broom structure when the broom-head is so worn as to be unfitted for use.

Particularly in view of the fact that a relatively high grade of wood is used for the handles, this part of the structure involves in its manufacture a large portion of the expense of constructing a broom, and as this part of the broom does not wear out and is discarded in the discarding of the broom a considerable waste results.

My primary objects are to avoid the waste referred to and to enable brooms to be supplied to users at much less expense than heretofore possible; to conserve the supply of wood utilized in broom manufacture; and to economize in storage and transportation space, permit of the articles being more easily handled, and avoid breakage.

As a preface to the following description it may be stated that my invention, generally considered, involves the manufacture of the broom in two sections, the one, a broom-head section which is formed of suitable straws, in accordance with common practice connected in any suitable way with what may be termed a stub-handle portion, and the other, a shaft forming the body of the handle, with the parts referred to adapted to be rigidly, yet releasably, connected together. In this way the shaft section referred to may be provided as a "master" handle and when a broom-head becomes impaired for further use, a new broom-head substituted for the impaired one, the user retaining the master handle for this purpose.

In accordance with the invention, the stub handle section which may be of relatively short length, as for example about 8" long, may be formed from either stock provided primarily for this purpose, or from the dis-

carded pieces in the wood-turning industries, the latter practice especially making for great economy and conservation in the use of wood.

Referring to the accompanying drawings:

Figure 1 is a view in elevation of the upper handle, or master, section of the broom device. Figure 2 is a similar view of a ferrule employed. Figure 3 is a similar view of a threaded connector in the form of a rod also employed. Figure 4 is a similar view of the broom-head portion of the broom; and Figure 5, an enlarged, similar, view of the broom structure at the joint between the handle proper and the stub handle section, showing the joint in section.

The broom-head portion, represented in Fig. 4 and indicated at 6 may be of any suitable construction and involving, instead of a long handle section in accordance with common practice, a stub handle section 7 as heretofore referred to, to which the straws forming the brushing portion of the broom are connected, as in accordance with usual practice. The handle portion proper, or master handle, is represented at 8, and the means whereby the handle portion 8 is rigidly releasably connected with the stub handle section 7, at 9. The connecting means 9 referred to, are preferably provided in the form shown and involve a ferrule 10, preferably of metal and formed to provide the oppositely flaring socket portions 11 and 12 opening through the ends of the ferrule. In practice the ferrule may be formed of a section of seamless steel tubing operated on by any suitable machine, as for example a punch press, for expanding its opposite ends to form the flaring portions 11 and 12 as stated. The connecting means shown also comprise a rod 13 threaded as indicated at 14 throughout the greater portion of its length, with its ends reduced as indicated at 15 and 16.

In the manufacture of the structure the lower end of the handle section 8 would preferably be bored centrally thereof and lengthwise of the handle section to present the socket 17 and the rod 13 screwed up into the socket 17 to the position shown in Fig. 5 to very tightly fit therein, thereby causing the lower end of the rod 13 to project beyond the lower end of the handle section 8. The ferrule 9 is then slipped over the lower end of the handle section 8, the latter being preferably beveled as indicated, to

extend within the socket portion 11 and the ferrule tightly driven into place, to insure against displacement thereon in the use of the structure and in the removal and replacement of the master handle relative to a broom-head.

The upper end of the stub handle 7 is also bored centrally and lengthwise thereof to provide the socket 18 which is internally screw-threaded as represented at 19 for permitting the rod section 13 to be screwed therein into the position shown in Fig. 5, the upper end of the stub handle being preferably tapered, as represented, to closely fit within the socket section 12 of the ferrule. The operator upon relatively rotating the handle section 8 to the broom-head may screw up the connecting means referred to sufficiently tight to form a very rigid connection between these parts suitable for resisting all of the stress to which the broom is subjected in use, and at the same time the connection permits of the handle portion 8 being unscrewed from the broom-head when it is desired to substitute another broom-head therefor.

It will be understood that the driving of the ferrule 9 upon the handle section 8 has a tendency to compress the wood about the threaded rod 13 to enhance the frictional grip between the latter and the handle-portion 8, thereby minimizing possibility of the rod 13 becoming unscrewed from the handle-section 8 in the act of disconnecting the latter from the broom-head with which it is connected.

The structure provided not only presents a high degree of rigidity, as stated, but the use of the ferrule enhances the appearance of the broom, rather than detracting therefrom.

It will be noted from the foregoing that by practicing my invention the part required to be discarded when a broom-head wears out, involves in its manufacture much less than the cost of brooms as universally furnished.

Furthermore, my invention has great merit in the particular that the amount of space required for storing and transporting the broom-heads is greatly reduced, with consequent reduction in cost for storage and transportation; the broom-heads are handled much more easily; and danger of breaking the handles is minimized. In this connection it may be stated that brooms as now provided present great difficulty in transportation on account of their shape, it being difficult to handle them when tied into bundles, and there is great danger of breaking the handles, as by the placing of heavy objects on the brooms in storage or transportation space.

While I have illustrated and described a certain form of means for connecting the

master handle with the broom-head, I do not wish to be understood as intending to limit the invention thereto, nor limiting the invention in any of its other aspects, it being my intention to claim my invention as broadly as the prior state of the art will permit.

What I claim as new and desire to secure by Letters Patent is:

1. A broom comprising a broom-head formed with a stub-section, a handle, and means for releasably securing said handle to said stub-section in alined condition therewith, said means comprising a ferrule presenting outwardly-flaring socket portions at opposite ends into which said handle portion and said stub-shaft extends, and a rod having screw-threaded engagement with said handle portion and said stub-shaft, whereby said handle portion and said stub-shaft may be tightened in said ferrule by relatively rotating these parts.

2. A joint for connecting together two members in alining condition comprising a rod extending from one end of said member lengthwise of the latter and threaded at its outer end, and a tubular member presenting flaring socket portions at its opposite ends, said tubular member being driven over the end of the said member from which said threaded rod extends, the other of said first-referred-to members presenting a tapered end-portion and containing a threaded socket, said last-referred-to member extending at its tapered portion into an end of said tubular member and releasably screwing upon the threaded portion of said rod.

3. A joint for connecting together two members in alining condition, comprising a socket-forming member presenting oppositely-flaring socket portions at its opposite ends, said members extending, respectively, into said socket portions, and means operatively engaging both of said members, without engagement with said socket-forming member, for drawing said first-referred-to members together, said members being so related to the socket-portions into which they extend that operating said means draws said members and socket-portions into tight engagement with each other.

4. A joint for connecting together two members in alining condition, comprising a socket-forming member, presenting oppositely-flaring socket portions at its opposite ends, said members extending, respectively, into said socket portions, and a threaded member operatively engaging with said first-referred-to members and operating when the latter are relatively rotated, to draw the latter together, said members being so related to the socket-portions into which they extend that operating said means draws said members and socket-portions into tight engagement with each other.

- 5 5. The combination with two rods, of a coupling for connecting said rods together in end-to-end relation comprising a ferrule surrounding the adjacent ends of said rods and a screw-threaded member engaging said rods, the engagement of said screw-threaded member with said rods being a threaded engagement, said ferrule and said rods being so related, and said coupling being so constructed and arranged, that should said rods become loose in the ferrule, rods and ferrule will be relatively moved into tight engagement with each other in the relative rotation of said threaded member and said rods.
- 10 6. The combination with two rods, of a coupling for connecting said rods together in end to end relation comprising a ferrule presenting outwardly flaring socket portions at its opposite ends, said socket portions surrounding the adjacent ends of said rods, 20 and a screw-threaded member engaging said rods, the engagement of said screw-threaded member with said rods being a threaded engagement, whereby said rods may be tightened in said ferrule by relative rotation of 25 these parts.
- 30 7. The combination with two members arranged in alining condition, of means for connecting said members together involving a ferrule having outwardly flaring socket portions at its opposite ends into which the adjacent ends of said members extend, and operating when said members are relatively rotated to draw said members into said socket portions and tighten them therein.

JOHN M. RAUHOFF.