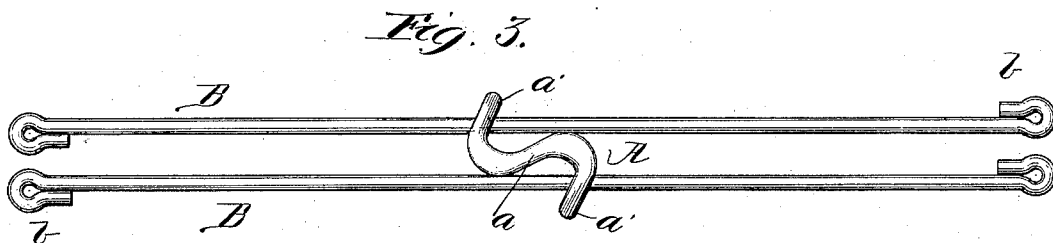
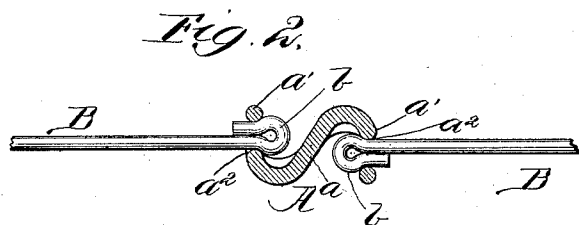
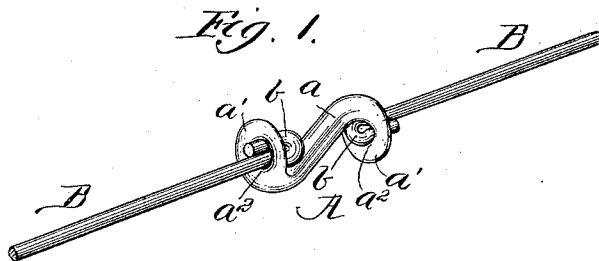


(Model.)

G. D. HAWORTH.  
CHECK ROW WIRE.

No. 469,403.

Patented Feb. 23, 1892.



Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE D. HAWORTH, OF CHICAGO, ILLINOIS.

## CHECK-ROW WIRE.

SPECIFICATION forming part of Letters Patent No. 469,403, dated February 23, 1892.

Application filed July 18, 1891. Serial No. 399,908. (Model.)

*To all whom it may concern:*

Be it known that I, GEORGE D. HAWORTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Check-Row Wire, of which the following is a specification.

My invention relates to check-row wire of the kind in which the cord or wire comprises a series of lengths or sections connected together by stops or buttons, so as to provide in effect a practically-continuous cord or jointed wire equipped with a series of stops or buttons arranged at intervals with reference to the desired actions of seed-dropping or seed-planting machines.

The more prominent objects of my invention are to provide a simple, economical, durable, and efficient construction of stop or button which can be cast in a simple two-part flask without cores, and thereby rendered a practical commercial success on account of the simplicity and economy involved in its production; to provide a construction of stop or button involving the foregoing and adapted, when connected with the wire sections, to provide a desirable joint in the wire; to connect the wire sections by stops or buttons which permit said sections to be brought alongside one another, and thereby provide in effect a construction of check-row wire which can be contracted and brought within a small compass for shipping purposes and for convenience in handling and extended when brought into service, and to provide certain novel and improved details serving to generally increase the practicability and general utility of check-row wire.

In the accompanying drawings, Figure 1 represents in perspective a couple of wire sections connected together by a stop or button in accordance with my invention. Fig. 2 represents the said two wire sections similarly connected together with the stop or button illustrated in longitudinal central section. Fig. 3 represents the wire sections brought alongside one another for purposes of transportation.

In Letters Patent of the United States No. 208,814 and No. 236,025, heretofore granted to me, I have set forth a two-part or divided button comprising a couple of hooks, each of

which has its shank portion or base enlarged and adapted to provide an eye for the end of a section of the wire, the check-row wire being made continuous by linking the hooks together.

In carrying out my present invention I form the stop or button A in one piece, and while said button could be struck up I prefer, as a matter of further and decided improvement, to form it by casting, as hereinafter more fully set forth.

The button A comprises a middle or body portion *a*, having a couple of oppositely-arranged end lugs or end portions *a'*, each adapted to provide a double-beveled eye or opening *a<sup>2</sup>*—that is to say, an eye or opening having its annular wall formed with a double bevel, so as to slope or bevel off both ways from the middle line of such wall. The end portions *a'* of the button are in the nature of flat perforated lugs or rings, which may be said to be laterally arranged and positioned in parallel planes. These said end portions are connected together by the diagonally-arranged middle or body portion *a* of the button.

The wire sections B are threaded through the eyes at the ends of the button and are provided with suitably-enlarged ends *b*, which abut against the inner sides of the end portions of the button when the check-row wire is in service, and hence serve to preserve connection between the wire sections and the button. While the ends of the wire sections can be enlarged in any suitable way, a preferred and simple mode of attaining such end is to bend the same into loops, as shown, it being observed that each loop is proximately fan or dovetail shape, so that while the bent-back portion of the wire extends within the eye, the wire portions forming the loop diverge from one another back of the eye to an extent to prevent the loop from being pulled through the said eye of the stop. The stop can, however, readily turn upon the wires thus connected with it, or the wires can readily turn in the stop, since the beveled rear or inner side portion of the wall of each eye is in engagement with the two rounded-wire portions, and hence the wire will not catch or take an undesirable bight or grip upon the stop.

For shipping purposes and also for convenience in transportation the wire sections can be pushed back through their respectively-allotted eyes, so as to bring them, for example, into the relative position illustrated in Fig. 3, it being observed that in my present construction the body or middle portion of the stop or button is so formed and arranged with relation to the eyes that it will not interfere with the foregoing-described manipulation of the several sections of which the check-row wire is composed. It will also be seen that the button in Fig. 3 can be moved along the wire sections in either direction, and also that said two sections can be drawn, respectively, in opposite directions and independently of the stop or button until the arrestment of their movements by the abutment of their enlarged ends against the shoulders or abutments formed by the laterally-arranged end portions of stop or button. It may also be noted that owing to the peculiar relative arrangements of the body and eyes the wire sections when brought together, as in Fig. 3, can lie parallel with one another, the stop or button in such case assuming substantially the position shown.

With regard to the beveled eyes or openings  $a^2$ , however, no limitation is herein placed upon the particular form of body portion which can be used in connection with such eyes, so long as the body portion is of a shape which will permit the stop to be cast in a simple two-part flask without cores.

As explanatory of the foregoing, it may be observed that the stop can be cast in an oblique or inclined position in the mold, the under side or half of the stop, including the lower half of each eye, being in the drag, while the upper side or half of the stop, including the remaining portions of the eyes, will be in the cope.

It will be understood that in thus molding the stop the parting-line in the sand will follow the general configuration of the stop.

A casual inspection of stops, such as proposed in United States Letters Patent Nos. 284,240 and 271,788, will enable those skilled in the art of molding to understand that the stops therein cannot be cast in a simple two-part flask, and that to cast them would require either the use of a dry-sand core or necessitate molding them in a three-part flask. Such methods, however, are too expensive to render the stops a commercial success; but by forming the stop with beveled eyes, in ac-

cordance with my invention, it can be cast in a two-part flask, since the two impressions, respectively representing one and the other of the two halves of the stop, can be readily made in the cope and drag, respectively.

The construction herein shown and comprising a couple of eyes, each having a double bevel, is the preferred one, and compared with a possible construction involving eyes having each a single bevel is a matter of further improvement.

With reference to the foregoing mention of a single bevel it will be apparent that so far as the feature of the bent dovetail-shaped loop portion of the wire engaging in beveled portions of the eyes is concerned the bevels at the inner sides of the end portions of the stop are alone of service; also that by prolonging such bevels, so as to extend from the inner to the outer sides of such ends of the stop, the latter could be cast as hereinbefore stated, and also the wires and stop could be brought into the position shown in Fig. 1.

What I claim as my invention is—

1. A stop or button for check-row wire, formed in one piece and comprising a middle body portion having laterally-arranged end portions, each provided with a beveled eye, substantially as and for the purpose set forth.

2. A stop or button for check-row wire, formed in one piece and comprising a middle body portion having laterally-arranged end portions, each provided with a double-beveled eye, substantially as and for the purpose set forth.

3. A stop or button for check-row wire, made complete in one piece with beveled eyes at its ends, combined with wires having dove-tailed-shaped loops arranged to engage in said beveled eyes, with the wire ends which are bent back upon the wires extending through the eyes, so as to allow the loop or diverging wire portions to engage the rear or inner bevels of the beveled eyes, substantially as described.

4. A stop or button for check-row wire, made in one piece and comprising the body portion  $a$ , having end portions or lugs  $a'$ , adapted to provide eyes for the wire sections, said body portion being diagonally arranged with relation to the said eyes, substantially as set forth.

GEO. D. HAWORTH.

Witnesses:

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