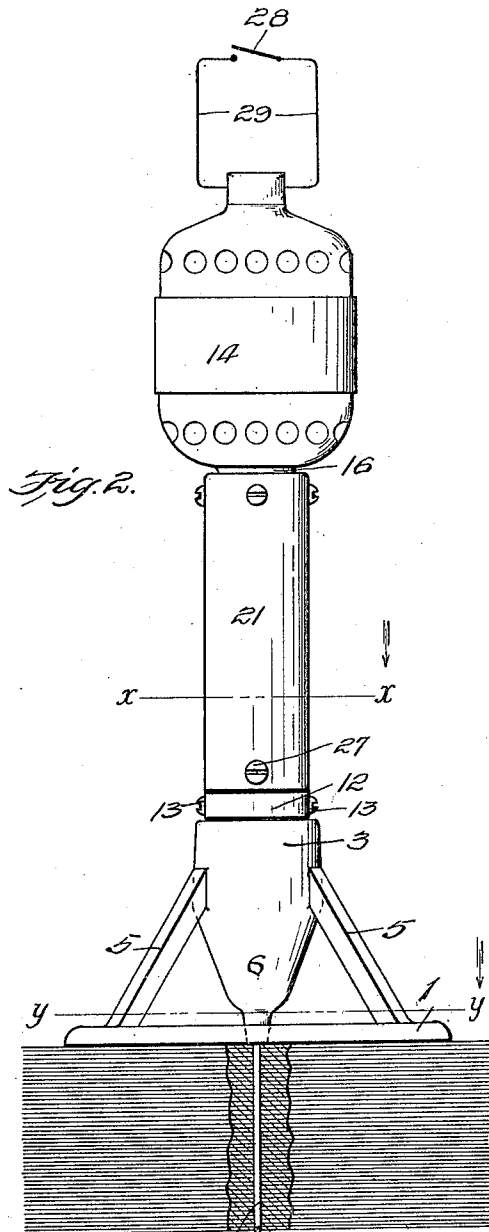
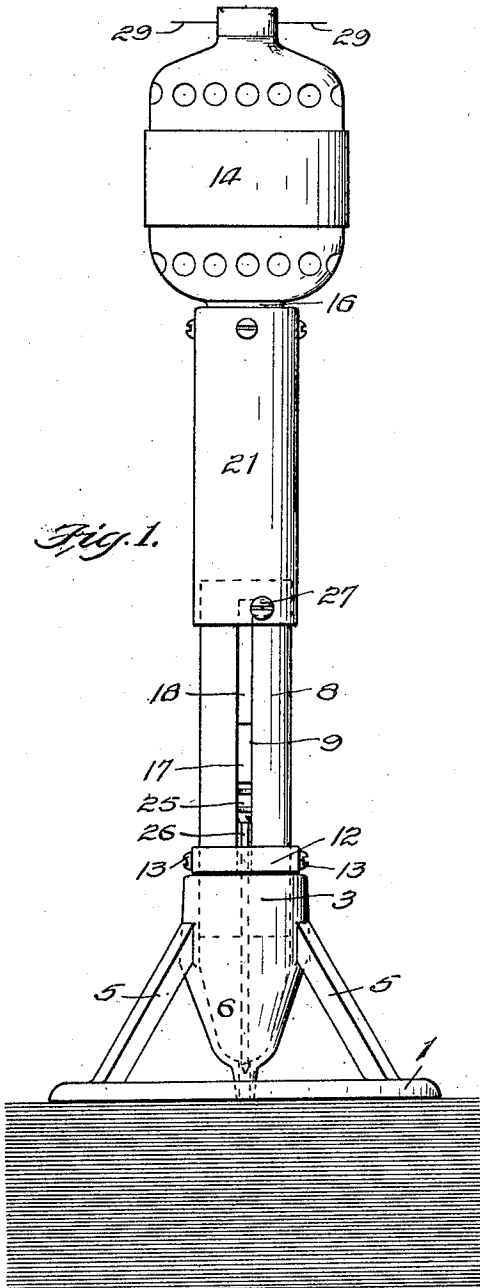


G. H. CONNOR.
PORTABLE PIERCING DEVICE.
APPLICATION FILED DEC. 6, 1918.

1,398,419.

Patented Nov. 29, 1921.
2 SHEETS—SHEET 1.



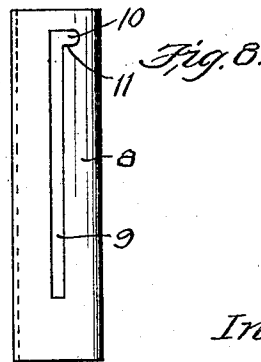
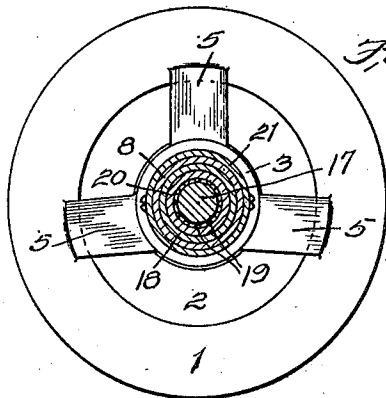
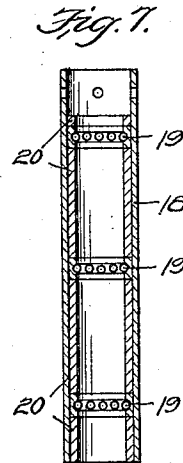
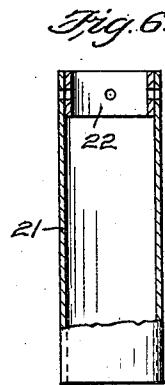
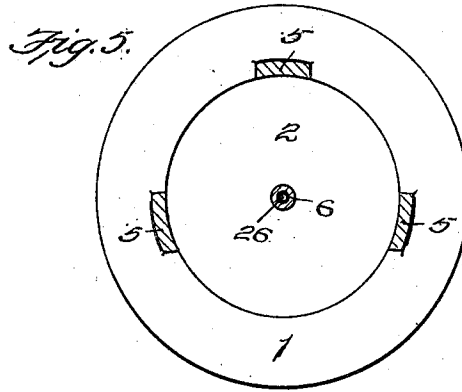
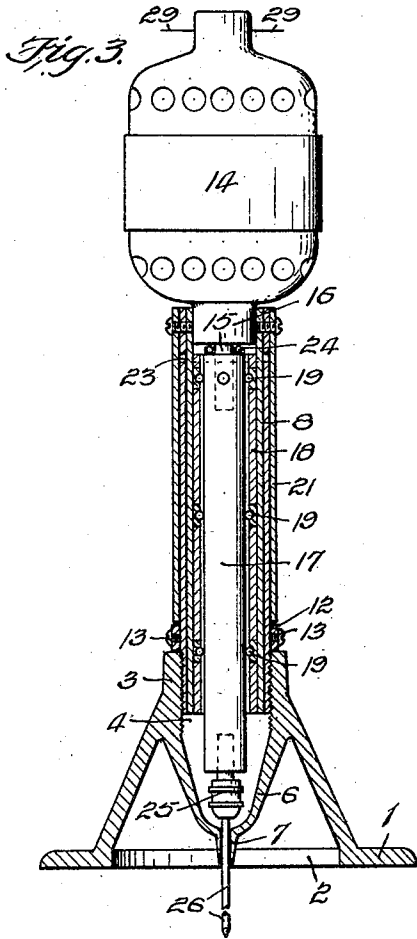
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Inventor:

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UNITED STATES PATENT OFFICE.

GEORGE H. CONNOR, OF ST. LOUIS, MISSOURI.

PORTABLE PIERCING DEVICE.

1,398,419.

Specification of Letters Patent.

Patented Nov. 29, 1921.

Application filed December 6, 1918. Serial No. 265,621.

To all whom it may concern:

Be it known that I, GEORGE H. CONNOR, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented a new and useful Portable Piercing Device, of which the following is a specification.

In the manufacture of clothing it is customary to lay a large number of layers of cloth upon a table, place a pattern upon the top layer, and to provide the top layer with marks through the pattern to indicate where button holes are to be formed, buttons to be sewed, and the like, and after the top layer of cloth has been marked to take an awl, or similar tool and force it through all of the lowers of cloth to indicate the locations of the button holes to be formed, buttons to be sewed, and the like, without having to lay the pattern on each layer of cloth and mark them separately.

It is the object of my present invention, to provide a portable electrically driven piercing machine which can be easily and readily moved by means of one hand from place to place, and positioned directly over each pattern mark for piercing all of the layers of cloth in a single downward movement of a piercing tool, and, has for a further object to design a portable electrically driven piercing device that will be very compact, having all of the parts in vertical axial alinement, resulting in simplicity of construction, durability, and efficiency.

With the above and other objects in view, the invention consists in the novel features of construction, combination, and arrangement of parts, hereinafter described and finally pointed out in the claims hereto appended.

Referring to the accompanying drawings forming a part of this specification wherein like characters of reference denote similar parts throughout the several views:

Figure 1, is a side elevation of a piercing device constructed in accordance with my invention, showing the piercing tool in its uppermost raised position.

Fig. 2, is a side elevation of the piercing device, showing the piercing tool as passed through a lay or spread of cloth.

Fig. 3, is a vertical sectional view of my improved piercing device.

Fig. 4, is a view taken on line X—X of Fig. 2.

Fig. 5, is a view taken on line Y—Y of Fig. 2.

Fig. 6, is a sectional view of the handle-barrel.

Fig. 7, is a sectional view of the tubular plunger carrying ball-bearings.

Fig. 8, is a sectional view of the supporting barrel.

In carrying out the aim of my invention, I employ a suitable base-plate 1 having a central opening 2 to enable an operator to readily see any markings on the piece of the lay and to readily and quickly place the piercing device in proper position on the top piece of the lay so that the piercing tool, which will be hereinafter more clearly set forth, can be positioned directly over any marking adapted to indicate piercing of the lay.

A suitable supporting head 3 having a vertically disposed central opening 4 is supported a suitable distance directly above the opening 2, of the base-plate 1 by means of suitable supporting legs 5 which are preferably integral with the base-plate 1. The supporting head 3 is provided with a suitably shaped hollow depending member 6 which extends to the lower plane of the base-plate 1 and is provided with a piercing tool receiving and guide opening 7 in axial alinement with the opening 4 of the supporting head 3. This tripod arrangement permits the operator to readily see the markings on the top piece of the lay through the opening 2 of the base-plate 1 from any side of the device, as is manifest. A tubular member 8 is suitably supported by the head 3, such as by threaded engagement with the inner wall of the opening 6, as clearly shown in Fig. 3. The tubular member 8 is provided with a longitudinally slotted opening 9 having a right angular offset 10, at its upper end, to provide a shoulder 11, as shown in Figs. 1 and 8.

The tubular member 8 acts as a vertical guide, as will be more clearly apparent hereinafter. The tubular member 8 is provided with a suitable vertically adjustable gage-collar 12. Suitable retaining devices 13 are employed for holding the collar 12 in any adjusted position, or elevation on the tubular member 8, as shown in Fig. 3.

The reference character 14 designates a suitable electric motor having the vertically disposed armature shaft 15. The lower end of the motor 14 is provided with a suitable neck 16 through which the armature shaft passes, as clearly shown in Fig. 3.

A suitable tool stock 17 is suitably fixed to

and depends from the lower end of the armature shaft 15 and is adapted to revolve therewith.

A tubular member 18 is suitably secured to 5 and depends from the neck 16, of the motor 14, and is receivable within the tubular member 18, as clearly shown in Fig. 2. The tubular member 18 is provided with a plurality of sets of suitable ball bearings 19 which 10 are spaced apart by means of the spacing rings 20. The tool stock 17 it will be observed, from Fig. 3, passes downwardly through the tubular member 18 in axial alinement therewith and revolves upon the 15 ball-bearings 19.

A tubular handle member 21 is provided at its upper end with an inner spacer-ring 22. The upper end of the tubular member 21 is suitably secured to the upper end of 20 the tubular member 18 by the same means as secures the tubular member 18 to the neck 16, of the motor 14, such as screws or like fastening devices. When the tubular member 18 and tubular handle member 21 25 are assembled there is an annular space or chamber 23 formed between the two elements for the reception of the tubular member 8 which is supported by the head 3, as clearly shown in Fig. 3.

A set of end thrust ball-bearings 24 are 30 employed at the upper end of the tool stock 17. The lower end of the tool stock 17 is provided with a suitable chuck 25 for holding a suitable piercing tool 26, which tool 35 is adapted to be forced through the lay or spread of cloth for accurately marking, by piercing each layer of cloth as the piercing tool passes through the same.

From the foregoing description it will 40 be readily seen that I have provided a piercing device that will accurately pierce a lay or spread of cloth comprising a number of layers for indicating the locations of button holes to be formed, buttons to be sewed, and 45 similar locations in the cloth or other material.

The tubular handle member 21 is provided with a set screw 27, which is adapted to engage in the slotted opening 9 for guiding the 50 telescopic movement of the tubular members 18 and 21 and which screw further acts as a means to rest upon the shoulder 11 to hold the telescopic members in their extended position when desired.

55 A suitable switch 28 is secured to one of the electric conductors 29 leading to the motor 14, so that the motor may be quickly started or stopped, as desired.

The operation of the piercing device is 60 as follows:

After a lay or spread of cloth is laid out upon a table and the various piercings marked upon the top layer of material, the operator places the device upon the material 65 so that the piercing tool comes directly

over some one pattern marking. The operator positions the device with the piercing tool in its uppermost raised position, so that it will not engage the material to be pierced. After the device has been positioned the 70 piercing tool is lowered so as to pass completely through the guide opening 6 of the depending member 5, by giving a slight turn to the tubular member 21, which releases the screw 7 from the shoulder 11 75 thereby allowing the telescoping of the tubular members 18 and 21 and the lowering of the piercing tool to engagement with the material to be pierced, as will be clearly understood from Figs. 1, 2 and 3 of the 80 drawings.

The many advantages of the herein-described invention will readily suggest themselves to those skilled in the art to which it appertains. 85

I do not desire to be understood as limiting myself to the details of construction and arrangement as herein described and illustrated, as it is manifest that variations and modifications may be made in the features 90 of construction and arrangement in the adaption of the device to various conditions of use without departing from the spirit and scope of my invention and the terms of the following claims, hence wish it to be 95 understood that I reserve the right to make any such changes or modifications as may fairly fall within the scope of the appended claims when fairly construed.

What I claim is: 100

1. In a device of the class described, an electric motor including an armature shaft, piercing means revoluble with the armature shaft, a support having a sight opening, and extensible means interposed between the 105 motor and said support, all of said elements being arranged in axial alinement, and said extensible means adapted to act as a handle for positioning the device.

2. In a device of the class described, an 110 electric motor including an armature shaft, piercing means revoluble with the armature shaft, a support having a central opening to receive and guide the piercing means, extensible means interposed between the 115 motor and said support arranged in axial alinement with the piercing means and adapted to act as a guide therefor and adjustable means carried by the support for limiting the downward movement of said 120 piercing means.

3. In a device of the class described, an electric motor including an armature shaft, piercing means revoluble with the armature shaft, a support having a sight open- 125 ing and a central opening to receive and guide the piercing means, extensible means interposed between the motor and said support arranged in axial alinement with the piercing means and adapted to act as an 130

accurate guide therefor, adjustable means for limiting the downward movement of said piercing means, and means for limiting the upward movement of said piercing means.

4. In a device of the class described, an electric motor including an armature shaft, piercing means revoluble with the armature shaft, a base-plate having a sight opening, a support carried by said base-plate, means for guiding said piercing means, means having an annular chamber depending from the motor in axial alinement with the piercing means for telescopic engagement with the upper end of said support.

5. In a device of the class described, an electric motor including an armature shaft, piercing means revoluble with the armature shaft, a base-plate having a sight opening, a support carried by said base-plate, means for guiding said piercing means, means having an annular chamber depending from the motor in axial alinement with the piercing means for telescopic engagement with the upper end of said support, and adjustable means for limiting the downward movement of said piercing means.

6. In a device of the class described, a base-plate having a sight opening, a supporting member mounted upon said base-plate, an electric motor having an armature-shaft, telescopic members, one of said members being fixed to the motor and capable of vertical reciprocating movements and a slight rotary movement within the other member which is fixed to the supporting member, a tool stock fixed to the armature shaft and revoluble therewith, a piercing tool carried by said tool stock, and means for guiding said piercing tool in its downward movement.

7. In a device of the class described, in combination, an electric motor having an armature shaft, a base having a sight opening and a central opening, a tubular member for supporting the motor, a support for slidably receiving and guiding said tubular member, a tool stock fixed to said armature shaft and revolubly supported within said tubular member, a tubular handle surrounding the tubular member and support, vertically adjustable means carried by the support for limiting the upward and downward movement of the tool stock, and a piercing tool carried by said tool stock in axial alinement with the tubular members and passing through the central opening of the base.

8. In a device of the class described, an

electric motor including an armature shaft, 60
piercing means revoluble with the armature shaft, guiding means for said piercing means, a base-plate having a sight opening, a support carried by said base-plate, means 65
having an annular chamber depending from the motor in axial alinement with the piercing means for telescopic engagement with the upper end of said support, adjustable means for limiting the downward movement 70
of said piercing means, means for limiting the upward movement of said piercing means, and means for holding the piercing means in its uppermost position.

9. In a device of the class described, a base-plate having a central sight opening, 75
a tripod mounted upon said base-plate having a piercing tool receiving opening, a tubular member supported by said tripod, an electric motor including an armature shaft, a tool stock fixed to and depending 80
from said armature shaft adapted to revolve therewith, a piercing tool removably secured to the lower end of said tool stock, a tubular member fixed to and depending from said motor and having slidable engagement with 85
said first mentioned tubular member, and a third tubular member surrounding said second tubular member movable with said second tubular member, and ball-bearings carried by said second mentioned tubular mem- 90
ber for said tool stock to revolve upon.

10. In a device of the class described, a support having a sight opening, a central piercing element receiving opening, an electric motor including an armature shaft, 95
telescopic members, one of said members being connected to the support and the other member to the motor, a tool stock revoluble within one of the telescopic members and longitudinally movable therewith, a piercing 100
element carried by said tool stock and passing through the central opening of the support and a handle movable with the motor surrounding the telescopic members.

11. In a device of the class described, a 105
support having a sight opening and a central opening, an electric motor including an armature shaft, telescopic means supported by the support, a tool stock carried by the armature shaft of the motor and adapted 110
to revolve therewith and pass through the central opening of the support, and a tubular handle fixed to and surrounding the telescopic members.

In testimony whereof, I have hereunto 115
signed my name to the specification.

GEORGE H. CONNOR.