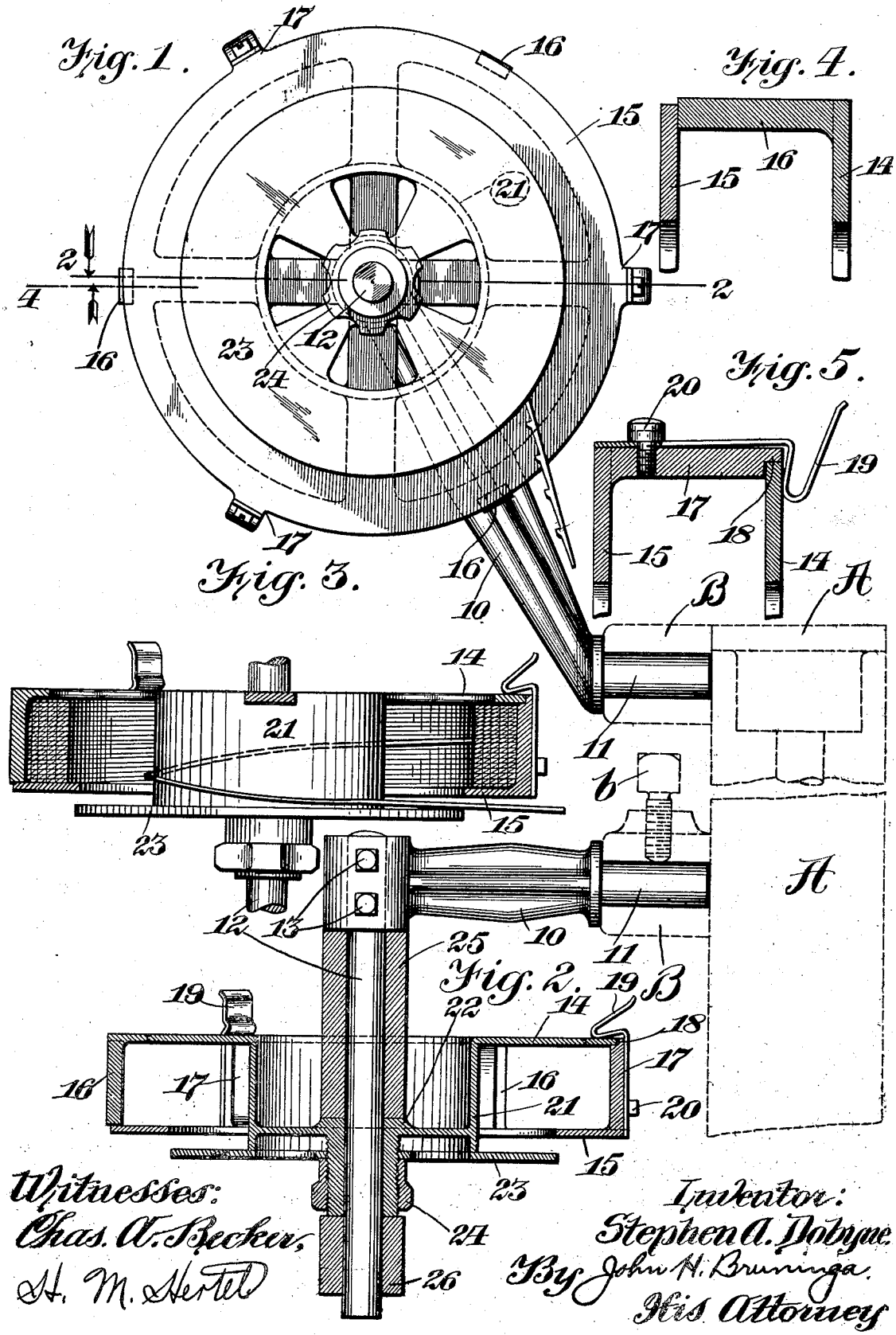
S. A. DOBYNE.

REEL FOR NAILING MACHINES.

APPLICATION FILED MAR. 18, 1912.

1,056,751. Patented Mar. 18, 1913.



UNITED STATES PATENT OFFICE.

STEPHEN A. DOBYNE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CHAMPION SHOE MACHINERY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

REEL FOR NAILING-MACHINES.

1,056,751. Specification of Letters Patent. Patented Mar. 18, 1913.

Application filed March 18, 1912. Serial No. 684,652.

To all whom it may concern:

Be it known that I, STEPHEN A. DOBYNE, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Reel for Nailing-Machines, of which the following is a specification.

This invention relates to reels, and more particularly to reels for nailing machines.

One of the objects of this invention is to construct a reel which is capable of unreeling a coil of wire without twisting or kinking the wire, and in which the wire cannot become caught.

Another object is to provide a reel which is simple in construction, smooth in its operation, easily manipulated, which is not liable to get out of repair, and in which the coil of wire can be readily placed into and out of position.

Further objects will appear from the detail description taken in connection with the accompanying drawing in which:

Figure 1 is an end elevation of the reel in position on a nailing machine, Fig. 2 is a section on the line 2—2 Fig. 1, Fig. 3 is a section similar to Fig. 2, but showing the wire in position, Fig. 4 is a section on the line 4 Fig. 1, and Fig. 5 is an enlarged detail section on the line 2—2 Fig. 1.

In some classes of nailing machines, more particularly the class known as "string nailers" the fastener stock consists of a wire or strip cut to form a string of connected headed nails. The string or wire so formed is wound in the form of a coil and placed in a coil holder or reel on a nailing machine where it is unreeled and used to form fasteners which are driven into the work. Great difficulty has been experienced in unreeling such string wire, in view of the fact that the heads on the wire would catch, causing sticking of the wire and either breaking of the wire or stopping of the machine. It has however been found that with a properly constructed reel such a wire can be unwound from the inside without causing sticking or catching of the wire so that the wire will unwind smoothly. In the specification and claims the term "wire" is used; this term is however to be taken in its broadest sense so as to cover round wire, strip, etc., or stock which is smooth or worked into string form.

Referring to the accompanying drawing, A designates part of the frame of a nailing machine provided with a boss B. This nailing machine may be of the form shown and described in my Patent No. 1,026,028, granted May 14, 1912. A bracket 10 is provided with a lug 11 fitting in the boss B and held in position therein by means of the set screw *b*. The bracket 10 supports a shaft 12 secured therein by means of screws 13.

The reel proper comprises a wire coil support consisting of end plates 14 and 15. The end plate 14 is provided with a series of lugs 16 and the end plate 15 with a series of lugs 17. These lugs are arranged to hold the plates in spaced relation with the lugs on one plate alternately with those on the other. The lugs 17 are provided with shoulders 18 and with spring latches 19 secured thereto by means of screws 20. These latches serve to latch the plates in proper spaced relation. The plate 14 has formed thereon a cylindrical member 21 which extends inwardly and through the plate 15 when the plates are in coöperative relation. The wire engaging surface of this cylindrical member is solid and uninterrupted so as to form an outside cylindrical bearing within the coil support for a purpose hereinafter to be described. A hub 22 is formed on the cylindrical member 21 and is bored to form a bearing for supporting the reel for rotation on the shaft 12. The end plate 15 is in the form of an annular ring which leaves a circular opening in its end of the support through which the cylindrical member 21 passes, this cylindrical member passing through and extending for a short distance beyond the end plate 15. A circular cover plate 23 is mounted on the hub 22 and is clamped in position thereon against the end of the cylindrical member 21 by means of the nut 24. The diameter of this plate is slightly larger than the inside diameter of the circular hole formed in the plate 15, and this plate when clamped in position will be spaced a short distance from the end plate 15 so as to cover the hole in the end plate, but leave a small space between the end plate and the cover plate 23. The coil support or reel is mounted for free rotation on the shaft 12 and is held in position thereon by means of collars 25 and 26.

In order to place a coil of wire in the coil support or reel, the cover plate 23 is removed from the hub by removing the nut

24, and the end plate 15 is then separated from the end plate 14 by drawing out the latches 19. The coil can now be placed in position on the end plate 14 and within the lugs 16 thereon, and the parts can then be assembled. The coil being wound so that it can be unwound from the center, the loose end of the wire is now passed between the end plate 15 and the cover plate 23 as shown in the drawing. By pulling on the wire the reel will freely rotate to unwind the wire. This is accomplished as follows: It will be noted that the wire bears on the cylindrical member 21 as it leaves the reel. This member forms a guide whose axis is concentric with the axis of the rotatable coil support, and whose diameter is sufficient to cause a pull on the wire to rotate the support without kinking the wire. As a strain is exerted on the wire the coil support will be caused to revolve in the same manner as if the wire were wound on the guide. As a matter of fact there is only a turn on this guide, but this turn is continuously replenished from the inside of the coil as the wire is used and as the coil support revolves. The end plate forms a guide member for sustaining the wire laterally so that a whole coil of wire will not be pulled out at once as would be the case if there were no lateral stop on the cylindrical guide 21. This also permits the wire to be unwound from any direction other than by a straight downward pull.

The reel may be supported either vertically as shown or horizontally as it will work equally well in either position. As the wire is unwound from the inside of the coil and as it is positively guided while it leaves the reel, no kinking, catching, or tangling can take place.

It is obvious that various changes may be made in the details of construction without departing from this invention, and it is therefore to be understood that this invention is not to be limited to the specific construction shown and described.

Having thus described the invention what is claimed is:

1. A reel comprising a rotatable support for a coil of wire, and a guide having a wire engaging surface for the wire leaving the reel, said guide concentric with the axis of said support and of sufficient diameter to cause a strain on the wire to rotate said support and unwind the wire therefrom.

2. A reel comprising a rotatable support for a coil of wire, a guide for the wire leaving the reel, said guide being concentric with the axis of said support and of sufficient diameter to cause a strain on the wire to rotate said support and unwind the wire therefrom, and a guide member for sustaining the wire laterally.

3. A reel comprising a rotatable support for a coil of wire constructed to permit the wire to unwind from the inside of the coil, and a guide for the wire leaving the reel, said guide being concentric with the axis of said support and having a guiding portion positioned outside of said support.

4. A reel comprising a rotatable support for a coil of wire constructed to permit the wire to unwind from the inside of the coil, and a cylindrical guide for the wire leaving the reel, said guide being positioned inside of the coil and having a guiding portion positioned outside of said support.

5. A reel comprising a rotatable support for a coil of wire constructed to permit the wire to unwind from the inside of the coil, a cylindrical guide for the wire leaving the reel having a guiding portion positioned outside of said support, and an annular flange on said guide.

6. A reel comprising a rotatable support for a coil of wire constructed to permit the wire to unwind from the inside of the coil, a cylindrical guide on said support for the wire as it leaves the reel, and a shoulder for limiting the transverse movement of the wire.

7. A reel comprising a support for a coil of wire, a cylindrical wire guiding member extending inside of said support, and a wire sustaining shoulder on said guide member.

8. A reel comprising a support for a coil of wire and having a circular opening at one end, and a plate opposite said opening and spaced from said support and the coil therein.

9. A reel comprising a support for a coil of wire and having an opening at one end through which the wire may be unwound from the inside of the coil, and a member opposite said opening and spaced from said support constructed to guide the wire laterally as it leaves the reel.

10. A reel comprising a support for a coil of wire and having an opening at one side, a cylindrical wire guide extending into said support, and a member opposite said opening and coöperating with said guide to sustain the wire as it leaves the reel.

11. A reel comprising a support for a coil of wire and having a circular opening at one side, a cylindrical member extending into said support and through said opening, and a plate at the end of said cylindrical member spaced from said support, said cylindrical member and plate coöperating to guide the wire as it leaves the reel.

12. A reel comprising a rotatable support for a coil of wire, a wire guiding hub sustaining said support and extending through the same, and a plate clamped on the end of said hub.

13. A reel comprising a rotatable support for a coil of wire consisting of two detach-

ably connected end plates, a wire guiding hub on one of said end plates, and a plate on said hub.

14. A reel comprising a rotatable support for a coil of wire constructed to permit the wire to unwind from the inside of the coil, and a member spaced from said support and forming with said support means for laterally sustaining the wire leaving the reel.

15. A reel comprising a rotatable support for a coil of wire constructed to permit the wire to unwind from the inside of the coil, a central guide for the wire leaving the reel, and means outside of said support for sustaining the wire laterally.

In testimony whereof I affix my signature in presence of two witnesses.

STEPHEN A. DOBYNE.

Attest:

GEO. AUSTIN,

E. O. SCHLOSSER.