

Aug. 25, 1942.

O. R. HAAS

2,293,734

BOBBIN WINDER

Original Filed Sept. 14, 1939

Fig. 1

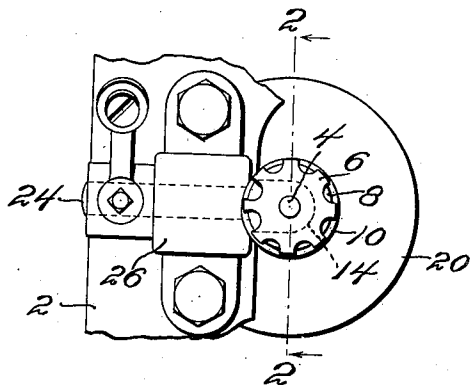


Fig. 2

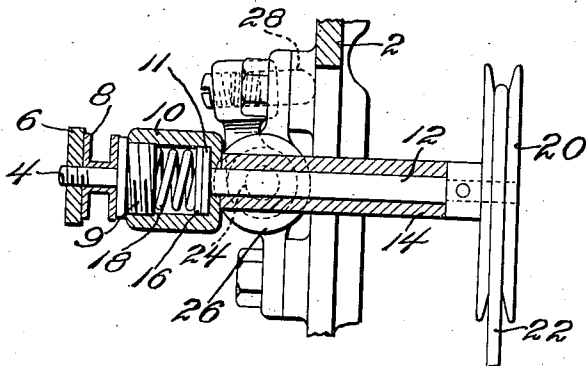
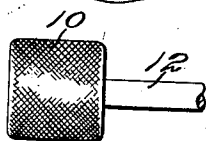


Fig. 3



Witness
Jas. J. Maloney

Inventor
Otto R. Haas
by *Frank Hildreth*
Barry & Fenner, Attys.

UNITED STATES PATENT OFFICE

2,293,734

BOBBIN WINDER

Otto R. Haas, North Beverly, Mass., assignor to
United Shoe Machinery Corporation, Flemington,
N. J., a corporation of New Jersey

Original application September 14, 1939, Serial
No. 294,926. Divided and this application April
21, 1941, Serial No. 389,516

4 Claims. (Cl. 242—23)

The present invention relates to bobbin winders for sewing machines and more particularly for machines of the type employing relatively heavy waxed thread, as disclosed in the present inventor's co-pending application for U. S. Letters Patent Serial No. 294,926, filed September 14, 1939, of which the present application is a division.

Previous bobbin winders for this type of machine have been constructed with a main winding spindle and driving means therefor consisting of a driving belt and pulley connected to the spindle. Due to the strength of the thread and the power required to draw thread through a suitable thread waxing apparatus, it has been found desirable to employ a positively acting bobbin clamp and some form of power disconnecting device such as a clutch or belt shifter so that the spindle may be brought to rest while clamping an empty bobbin or unclamping a filled bobbin from the spindle. Such devices are not only expensive to manufacture, but are subject to frequent breakdown or the necessity of constant attention and adjustment.

The object of the present invention is to avoid the difficulties referred to and to provide a novel and improved bobbin winder for shoe sewing or other machines which may be inexpensively manufactured and easily maintained in operating condition with little or no attention on the part of the operator. Accordingly, a feature of the present invention resides in a bobbin winder having a winding spindle, bobbin clamping means on the spindle and means for stopping rotation of the spindle while substituting an empty bobbin for a filled one comprising a slip clutch, the driven member of which has a gripping surface for holding the spindle manually from rotation. Preferably, the winding spindle is mounted concentrically with a driving shaft and the slip clutch connects the driving shaft and spindle, being rotated continuously with the shaft so that relative movement between members of the slip clutch occurs only when substituting bobbins on the spindle. This feature of the invention also includes the use of a hollow roughened sleeve on the driven clutch member having a flange portion and a spring inside the sleeve for pressing the flange portion against the headed portion of the driving shaft to provide sufficient frictional force to cause rotation of the spindle while a bobbin is being wound, but insufficient frictional force to cause rotation of the spindle when the sleeve is gripped manually.

Other features of the invention consist of novel

constructions, combinations and arrangements of parts hereinafter described and claimed which, together with the advantages obtained, will readily be understood from the following description taken in connection with the accompanying drawing.

In the drawing, Fig. 1 is a view in front elevation of a bobbin winder embodying the features of the present invention; Fig. 2 is a sectional view of the bobbin winder taken along the line 2—2 of Fig. 1; and Fig. 3 is a detail view in side elevation of the roughened sleeve of the driven clutch member of the bobbin winder.

The illustrated bobbin winder is intended for use with a shoe sewing machine of the type disclosed in the co-pending application above referred to and is mounted on the frame of the machine at a location convenient of access for the operator. A portion of the frame of the machine is indicated at 2 and consists of a vertical corner post in the supporting structure for the machine.

Referring more particularly to the drawing, the bobbin winder includes a threaded bobbin supporting spindle 4 having a bobbin securing and clamping nut 6 for holding a bobbin 8 against a circular threaded enlargement 9 at one end of the spindle 4. The threaded enlargement 9 on the spindle closes one end of a threaded sleeve 10 forming the driven member of a slip clutch connecting the spindle 4 with a winder driving shaft 12 rotatable in a bearing sleeve 14. One end of the shaft 12 is received within a shouldered end of the sleeve 10 and is provided with a disk-shaped head 11 serving as the driving member of the clutch. The head 11 has pressed against it a button 16 acted on by a spring 18 received within the sleeve 10 and arranged to be compressed against the circular enlargement 9 on the spindle. The outer surface of the sleeve 10 is roughened by knurling, as illustrated in Fig. 3, to assist the operator in holding the sleeve stationary while the shaft 12 continues to rotate so that the bobbin retaining nut 6 may be removed conveniently and an empty bobbin substituted for a filled one. The shaft 12 also carries a pulley 20 for a belt 22 which is driven by a suitable source of power. The force of the spring 18 is sufficient to cause rotation of the spindle 4 while the bobbin is being wound, but is insufficient when the sleeve is gripped with ordinary force by the hand of the operator.

In order to keep the winder belt 22 tight, the bearing sleeve 14 has connected with it a right angle trunnion 24. The trunnion 24 is rotat-

ably supported in a bearing 26 secured to the frame of the machine and has at its end opposite to the bearing sleeve 14 an arm in which is mounted a spring-pressed plunger 28 engaging a fixed portion on the machine frame.

The nature and scope of the invention having been indicated and a particular embodiment of the invention having been described, what is claimed is:

1. A bobbin winder for drawing shoe sewing thread through thread waxing apparatus having, in combination, a bobbin supporting spindle, bobbin clamping means on the spindle, and means for stopping rotation of the spindle while substituting an empty bobbin for a filled one comprising a slip clutch, the driven member of which has a hand gripping surface for holding the spindle manually from rotation.

2. A bobbin winder for drawing shoe sewing thread through thread waxing apparatus having, in combination, a driving shaft, a bobbin supporting spindle, bobbin clamping means on the spindle and means for stopping rotation of the spindle while substituting an empty bobbin for a filled one comprising a slip clutch connecting the driving shaft and spindle, and a sleeve having a roughened hand gripping surface for holding the spindle manually from rotation.

3. A bobbin winder having, in combination, a driving shaft, a bobbin supporting spindle con-

centric with the shaft, bobbin clamping means on the spindle and means for stopping rotation of the spindle while substituting an empty bobbin for a filled one comprising a headed portion on the shaft, a hollow sleeve having a flanged portion and a roughened exterior surface, and a spring inside the sleeve for pressing the flanged portion of the sleeve against the headed portion of the shaft with sufficient force to cause rotation of the spindle while a bobbin is being wound and with insufficient force to cause rotation of the spindle when the sleeve is gripped manually.

4. A bobbin winder having, in combination, a driving shaft, a bobbin supporting spindle concentric with the shaft, bobbin clamping means on the spindle and means for stopping rotation of the spindle while substituting an empty bobbin for a filled one comprising a headed portion on the shaft, a hollow sleeve having a flanged portion at one end and a roughened exterior surface, and a spring inside the sleeve for pressing the flanged portion of the sleeve against the headed portion of the shaft with sufficient force to cause rotation of the spindle while a bobbin being wound and with insufficient force to cause rotation of the spindle when the sleeve is gripped manually, the spindle being formed with a circular enlargement closing the other end of the sleeve and arranged to compress the spring.

OTTO R. HAAS.