Sept. 16, 1952 E. C. HARRIS 2,610,777

LACING NEEDLE

Filed June 1, 1949

FIG. 1

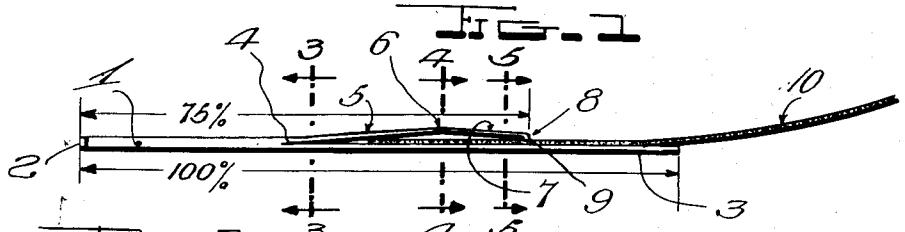


FIG. 2

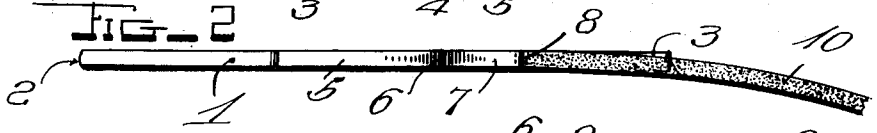


FIG. 7

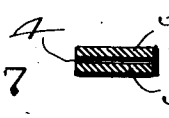


FIG. 3

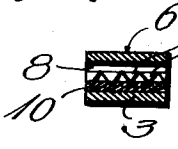


FIG. 4

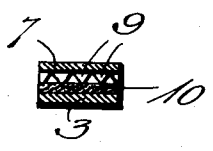


FIG. 5

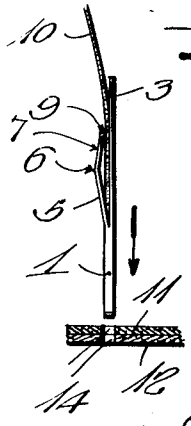


FIG. 6

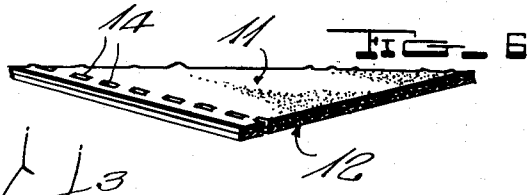


FIG. 8

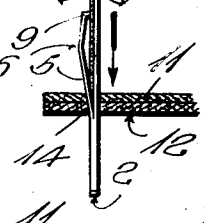


FIG. 9

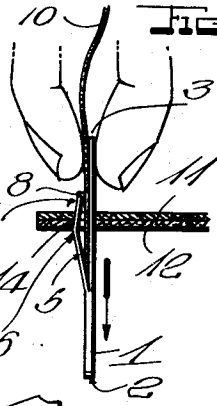


FIG. 10

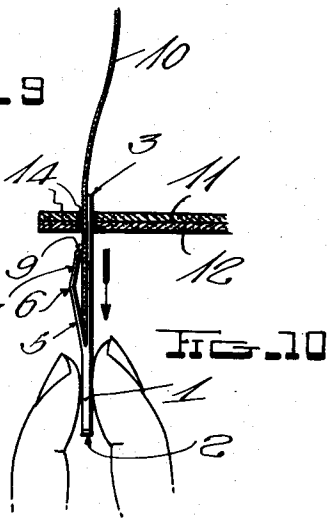


FIG. 11

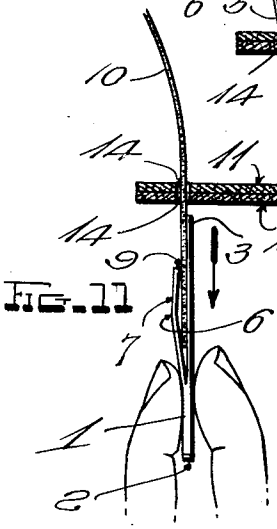
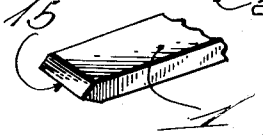


FIG. 12



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LACING NEEDLE

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Application June 1, 1949, Serial No. 96,461

3 Claims. (Cl. 223—103)

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My invention relates broadly to lacing needles, and more particularly to an improved construction of lacing needle for use in artcraft in the decoration or binding of sheetlike material.

One of the objects of my invention is to provide an improved needle for feeding and threading tape through sheet material for ornamenting and binding the sheets, in which convenient manual control is maintained over the tape through all stages of the operation of the needle.

Still another object of my invention is to provide an improved construction of needle for artcraft operation in decorating and binding sheet material with a ribbon or tape, in which the needle operates conjointly as a tape feeding device, a tape gripping device, and an awl for spreading the slits prepared in sheet material for the convenient passage of the tape or ribbon.

Still another object of my invention is to provide a construction of flat metallic needle for artcraft operation in which a narrow tape or ribbon may be gripped between flat coacting portions of the needle where one of the coacting portions of the needle is offset with respect to the other coacting portion thereof, to provide an awl effect for spreading the parts of the slitted material through which the needle is inserted to facilitate passage of the needle through the material under manual control on both sides of the material.

Still another object of my invention is to provide a construction of lacing needle formed from flat metallic strip having two coacting portions, with one portion of the strip extending approximately three-fourths of the length of the other coacting strip and offset therefrom to provide an awl effect for spreading slitted sheet-like material through which the needle is passed, and terminating in a gripping edge for gripping the narrow tape or ribbon to be threaded by the needle through the slitted material, the longer coacting portion of the needle extending beyond the shorter coacting portion thereof and serving as a manual grip for facilitating the controlled passage of the needle through the slitted material.

Another object of my invention, in contradistinction to present lacing needles, which insert the lacing into the sheet material at the point of greatest pressure, i. e., the top end of the needle, is to permit the insertion of the lacing nearer to the bottom end of the needle, prior to the time of greatest pressure, and to permit, by reason of the securing teeth in the said needle, placed approximately one-quarter below the top of the said needle, complete control over the lacing at the time of greatest pressure.

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Other and further objects of my invention reside in an improved lacing needle of flat striplike construction, which does not require the cementing of the tape to the needle in the performance of a threading operation, as set forth more fully in the specification hereinafter following by reference to the accompanying drawings, in which:

Figure 1 is a side elevational view of the needle of my invention showing a strip member secured thereto; Fig. 2 is a plan view of the needle with the strip inserted therein; Fig. 3 is a transverse sectional view taken substantially on line 3—3 of Fig. 1; Fig. 4 is a transverse sectional view taken substantially on line 4—4 of Fig. 1; Fig. 5 is a transverse sectional view taken substantially on line 5—5 of Fig. 1; Fig. 6 is a fragmentary perspective view showing a pair of sheets prepared with slits therein for the passage of the lacing needle and the inserted strip; Figs. 7, 8, 9, 10 and 11 show progressive steps in the process of passing the lacing needle of my invention through the slits in a pair of adjacent sheets and illustrating particularly the awl effect of the needle in spreading the slits for the passage of the strip; and Fig. 12 is a fragmentary perspective view of the chisel-like terminus which may be provided on the lacing needle of my invention.

My invention is directed to an improved needle for artcraft operations particularly suitable in the lacing of leather tape through slitted leather sheets for the ornamentation or binding thereof, wherein the needle is formed from flat, metallic, striplike material, with the entry ends thereof united or formed from a solid section. One coacting portion extends approximately three-fourths of the length of the other coacting portion, and terminates in an inwardly directed serrated edge bearing against the flat surface of the longer coacting portion of the needle, and serving to grip the narrow tape or ribbon which is fed along the longer coacting portion of the needle and under the gripping serrated edge of the shorter coacting portion of the needle. The shorter coacting portion of the needle is provided with an offset hump therein, directed away from the surface of the longer coacting portion of the needle in a position intermediate the junction of the coacting portions of the needle and the serrated end of the shorter coacting portion of the needle. This offset portion constitutes an expanded section for the needle intermediate the ends thereof, and serves as an awl for spreading the slitted parts of the material through which the needle is passed to facilitate entry of the flat tape or ribbon through the slitted material. The

longer coacting portion of the needle serves as a supporting surface for the tape or ribbon, against which pressure may be applied by the fingers of the operator in advancing the needle through the slitted material to a position where the entry end of the needle may be gripped by the fingers from the other side of the slitted material. This manual control which is continuously exercisable over the needle on both sides of the material being laced or bound, provides a very marked improvement in the operation of the needle of my invention over lacing needles heretofore available in the art.

Referring to the drawings in detail, reference character 1 designates the metallic strip forming the lacing needle having a rounded terminus 2 and a flat portion 3 at the opposite end thereof. Metallic strip 1 is longitudinally split throughout a portion of its length commencing at the position indicated at 4 by which the metallic strip 1 is bifurcated and divided into two portions, that is, the flat longitudinally extending portion 3 and the offset portion represented at 5. The offset portion 5 is provided with an outwardly bowed portion 6 which is offset from the plane of the flat longitudinally extending portion 3 for a distance equal to substantially twice the thickness of the needle 1, thereby providing an awl effect as the needle 1 is passed through slits in sheet material being operated upon by the needle. The outwardly bowed portion 6 then tapers inwardly, as represented at 7, toward the plane of the longitudinally extending portion 3 and is abruptly bent inwardly at its terminus toward the longitudinally extending strip 3 as represented at 8. The abruptly bent terminus 8 has a serrated edge constituted by a multiplicity of piercing teeth 9.

When inserting a tape or strip 10 into the needle the outwardly bowed portion 6 is grasped and moved outwardly from the flat longitudinally extending portion 3, thereby separating the serrated terminus 8 of the needle from the longitudinally extending portion 3 so that the piercing teeth 9 are displaced away from the surface of the flat longitudinally extending portion 3. The strip or tape 10 may then be moved between the bifurcated parts of the needle to a position abutting the interior face of the offset portion represented at 5 and in a position displaced from the junction 4 of the bifurcated parts of the needle. When thus inserted, the offset portion 5 of the needle, which is resilient and which has a constant tendency to yieldably clamp the end of the tape or strip, operates to move the piercing teeth 9 into a position in which the teeth 9 grip the tape or strip and prevent the tape or strip from slipping out of the needle. The outwardly bowed portion 6 serves as an awl to spread the slitted sheet material which I have represented in Fig. 6, comprising a pair of superimposed sheets 11 and 12.

The superimposed sheets 11 and 12 are provided with a row of slits represented at 14 through which the needle of my invention, with the tape or strip secured therein, is adapted to be laced.

In Figs. 7–8 I have shown the progress steps involved in performing a lacing operation. In Fig. 7 the needle with the strip or tape 10 secured therein is about to enter the aligned slits 14 in the sheets 11 and 12.

In Fig. 8 I have shown the needle advanced to a position in which the offset portion 5 commences to engage the interior edges of the slits 14 for producing this awl effect in spreading the slits 14.

In Fig. 9 I have shown the outwardly bowed portion 6 of the offset portion 5 of the needle just after it has passed through the slits 14 producing a spreading action for widening the slits to readily enable the strip or tape 10 to pass therethrough. In both of the operations shown in Figs. 8 and 9 the flat longitudinally extending surface 3 serves as a bearing surface against which the strip or tape 10 may be conveniently grasped between the fingers of the operator.

In Fig. 10 I have illustrated the slit 14 properly spread for the passage of the strip or tape 10 and the needle being drawn through the material 11—12 by grasping the flat end of the needle.

In Fig. 11 I have illustrated the strip or tape 10 being drawn through the widened portion 14 of the material 11 and 12 by pulling upon the needle 1, the slits 14 having been sufficiently spread or enlarged to facilitate the passage of the strip or tape 10.

In lieu of the rounded terminus on the needle 1 I may provide a knife or chisel-like edge as represented at 15 in Fig. 12.

One of the most important conditions governing the construction of the needle of my invention is the proportion of parts of the needle where the length of the offset 5 terminates at 8 in a position on the longitudinally extending portion 3 of the needle which is approximately three-quarters of the length of the entire needle, That is, the terminus of the offset portion 5 represented at 8 is approximately one-quarter of the length of the needle from the end 3 of the needle. I have represented these proportions in Fig. 1 where the terminus 8 of the offset portion 5 of the needle is represented as located at a distance which is 75% of the length of the needle as compared to the entire length of the needle represented as 100%. By reason of these proportions the maximum lacing pressure may be applied in guiding the lacing needle through the material because the strip or tape is gripped at the position 8 intermediate the length of the needle and a substantial bearing surface is provided for gripping opposite ends of the needle according to whether the needle is being pushed through the material as represented in Figs. 8 and 9, or being pulled through the material as represented in Figs. 10 and 11.

The provision of the awl effect in combination with the tape feeding operation has been found to be practical and successful in operation. While I have described my invention in one of its preferred embodiments I realize that modifications might be made and I desire it to be understood that no limitations are intended upon my invention other than may be imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is as follows:

1. A composite awl and lacing needle comprising a flat strip of substantially rectangular section slit at one end along its axis to a point remote from the other end providing a pair of rectangular strip members, with one of said strip members extending substantially beyond the end of the other of said strip members, the shorter of said strip members being bent at an angle laterally away from the other of said strip members to a hump portion and being bent from said hump portion toward the longer strip member and terminating in a tape engaging end whereby a tape inserted between said bifurcated portions of the strip may have the terminus thereof abutted against the inner junction of the bi-

furcated portions of said strip and clamped between the said bifurcated portions of said tape engaging end, the hump portion formed by the bent parts of the shorter of said strip members being offset from the plane of the longer of said strip members to form an awl for spreading slitted material through which the lacing needle is passed, and the longer strip member providing a flat tape guide and a finger grip for manipulating the awl and needle by the fingers for a substantial distance beyond said tape engaging end of the shorter of said strip members.

2. A combination awl and lacing needle comprising a flat strip of substantially rectangular section slit at one end along its axis to a point remote from one end providing a pair of strip members of rectangular section having unequal lengths, the shorter strip member including a pair of inclined faces meeting at a hump extending transversely of said last mentioned strip member and intermediate the junction of the strip members and the end of said shorter strip member operating as an awl for spreading slitted material through which the needle is passed for lacing a tape gripped by said strip members therethrough, the longer of said strip members providing a guiding surface for the lacing tape and a finger grip for manipulating the awl and needle beyond the end of the shorter strip member.

3. A combination awl and lacing needle comprising a flat strip of substantially rectangular

section terminating in a threading end and slit at the other end along its axis to a point remote from the threading end providing two coacting rectangular strip members having unequal lengths, with one of said strip members bowed outwardly to form an awl for facilitating the threading of the lacing needle through a slit and having a terminus directed toward the flat plane surface of the other of said strip members with teeth thereon for gripping a flat lacing strip between said strip members, the shorter of said strip members having a length approximately three-quarters of the total length of the lacing needle, and providing a flat linearly extending engaging surface and a linearly extending finger-engaging and lacing strip-guiding portion on the longer of said strip members extending approximately one-fourth the entire length of the needle.

ELIZABETH C. HARRIS.

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