

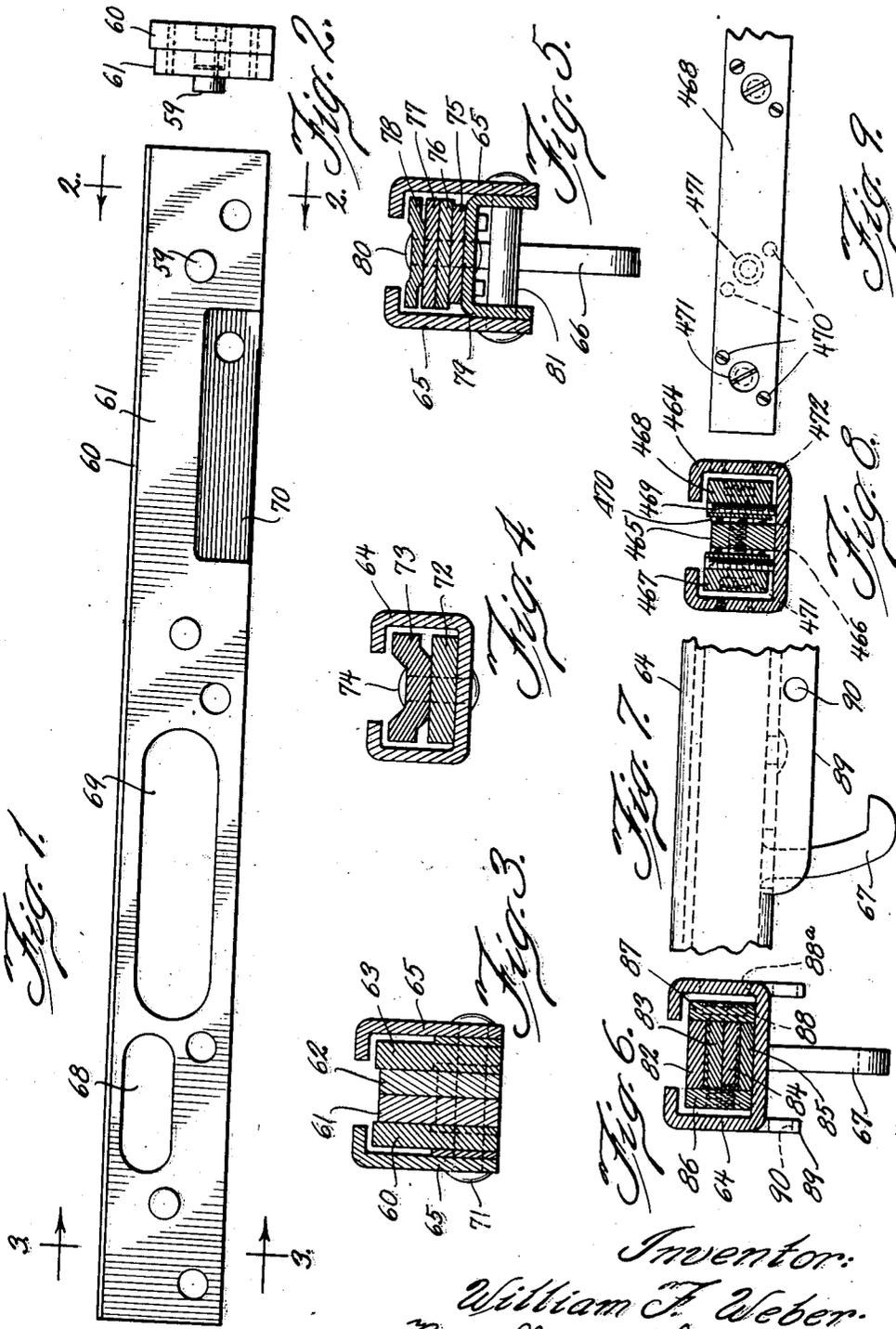
Feb. 1, 1938.

W. F. WEBER  
STAPLING MACHINE CORE

2,107,169

Filed Aug. 27, 1934

2 Sheets-Sheet 1



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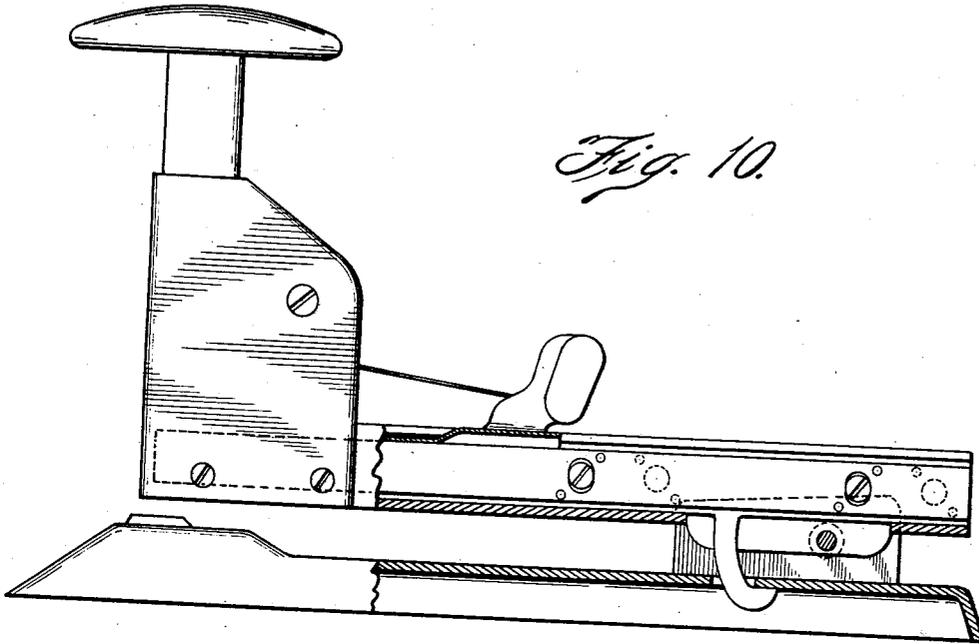
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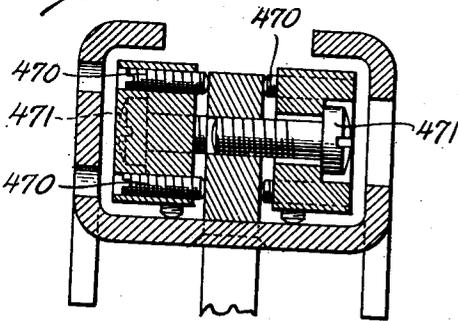
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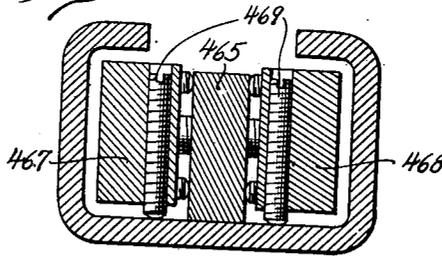


*Fig. 10.*

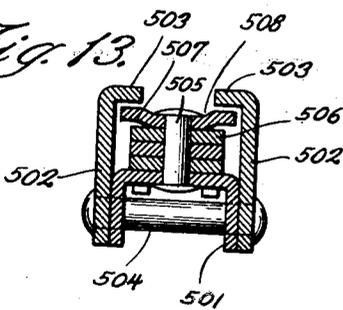
*Fig. 11.*



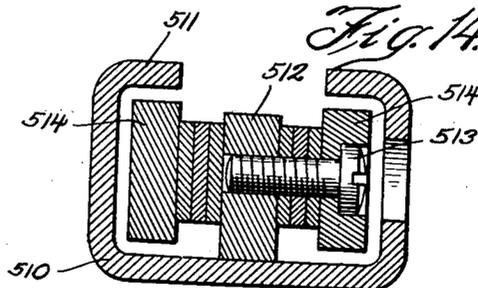
*Fig. 12.*



*Fig. 13.*



*Fig. 14.*



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# UNITED STATES PATENT OFFICE

2,107,169

## STAPLING MACHINE CORE

William F. Weber, Chicago, Ill.

Application August 27, 1934, Serial No. 741,658

2 Claims. (Cl. 1—3)

The present invention has to do with the structure of a core or filler member for the beam of a stapling device and has particularly to do with the fabrication of such a core from a number of laminations of material.

Heretofore, it has been conventional to provide a core for such a magazine as an integral member which is cut, drilled and milled to provide the necessary variations from a truly parallelepiped configuration. The production of such a core from a number of preformed strips assembled into a unit reduces the cost of production, lessens the weight, allows the use of cheaper and more easily handled material, and facilitates the fabrication and assembly of associated parts.

Among the objects of the invention are included the following:

A novel beam for a stapling machine having a core of laminated material.

A unique beam for a stapling machine comprising a core of laminated material having as a part thereof a member engaging the base of the device to prevent too great angular movement between the base and beam.

A beam having a core of lighter construction than usual and more readily manufactured than a conventional solid or hollow core.

A magazine core of laminated material and upon which a riser may be integrally formed or to which such a riser may be attached, the riser being for regulating the angular movement of the magazine beam.

These objects, and such other objects as may hereinafter appear are obtained by the novel construction, unique arrangement and improved combination of the several elements which constitute the several embodiments of the invention illustrated in the accompanying two sheets of drawings, hereby made a part of this specification, and in which:

Figure 1 is a side elevation of a core made in accord with the present invention and especially fitted for use with the stapling device invented by William G. Pankonin and which is the subject matter of an application for Letters Patent No. 731,609, filed June 21, 1934, in his name and entitled "Stapling device";

Figure 2 is a fragmentary transverse section of the core shown in Figure 1 on the line 2—2 of Figure 1;

Figure 3 is a full transverse section on the line 3—3 of Figure 1;

Figure 4 is a transverse section of another type of laminated core;

Figure 5 is a transverse section of a third form of core;

Figure 6 is a transverse section of a fourth form of core;

Figure 7 is a fragmental longitudinal section of the core shown in Figure 6;

Figure 8 is a transverse section of a fifth form of laminated core;

Figure 9 is a fragmentary elevation of the core shown in Figure 8;

Figure 10 is a side elevation, partly in vertical section, of a stapling machine in which the laminated cores heretofore described may be used;

Figure 11 is an enlarged transverse section of the core shown in Figure 8, but in a different plane from that shown in Figure 8;

Figure 12 is another enlarged transverse section of the core shown in Figures 8 and 11 and is taken at still another plane;

Figure 13 is a transverse section of a sixth form which the laminated core herein described may take; and

Figure 14 is a transverse section of a core comprising side members and spacing washers.

Like reference characters are used to designate similar parts in the drawings and in the description of the invention which follows.

In Figures 1, 2 and 3, a core made entirely of vertically disposed laminations is illustrated. The laminations comprise strips secured together by dowels 59 arranged transversely thereof. In such form of core, there are four members, 60, 61, 62 and 63, the two outer members 60 and 63 rising to greater height than the two interior members 61 and 62.

In all forms of laminated core, there is a member 64 having vertical parallel sides with in-turned flanges extending about the members comprising the core as in Figure 4, or two side members 65, of L-shape attached thereto as shown in Figure 3 to provide, with the core, a runway for staples. The spacing between the interior walls of member 64 and core, or core and side members 65, is such that the runway formed therebetween readily receives staples. The width of the runway is such that staples may not be displaced from such runway so as to pile upon one another or become otherwise disarranged.

A riser 66 or 67, such as is shown in Figures 5, 6 and 7 may be employed with the structures shown. Preferably the riser should be in the center of the core but a position to either side of the center is permissible with concurrent alteration of the associated structure and position of the limiting member against which the riser im-

pinges to limit angular separation of the base and riser.

In the fabrication of a laminated core, with a U-shaped member 64 or L-shaped staple guiding members 65, simplicity of construction may be obtained by providing the various parts with tangs which are complementary to slots in opposed members and also by the use of round rivets. In this respect the assembly of the laminated core possesses many advantages over other forms of cores.

Figures 1, 2 and 3 illustrate a laminated vertical member, as previously stated. The members of such core, 60, 61, 62 and 63, may be cut away to lighten the core. In Figure 1, a number of openings 68 and 69 are illustrated. In addition, there has been cut away at 70 material for the reception of a loose riser such as heretofore has been mentioned. The apertures for dowels and the dowels 59 are shown, and there are several unnumbered apertures illustrated for the assembly of the core, i. e., for riveting the side members 65 to the core proper, the rivets for this purpose being numbered 71.

In Figure 4, the beam illustrated comprises a U-shaped member 64, which acts as a spacer and which has a bearing pin therethrough and which acts as a support for the laminated core, a lower lamination 72, a flat plate 73 slightly offset at its center to allow for clearance of rivets and on the upper surfaces of which the bridge of the staples rides, and a rivet 74 seated in a central section below the level of the outer edges of the upper lamination. The rivet 74 extends through the U-shaped member 64 at its underside.

In Figure 5, the core of the beam comprises a series of flat strips 75, 76, and 77, and a flat member 78 offset at its center to provide clearance for rivets and other fastening means. The lamination 75 is of less width than the laminations thereabove to reduce friction at the end of the staple leg and to compensate for deformations thereof always more noticeable at the ends than in the body of the legs.

Beneath the member 75 is an inverted U-member 79 which acts as a support for the laminated core. Rivet 80 extends through members 79, 78, 77, 76 and 75. At each side is an L-shaped guide member 65. Through the member 79 and side members 65, rivet 81 extends. A riser 66 is illustrated, but this is described in the application of William G. Pankonin heretofore mentioned.

In the embodiment of the invention shown in Figures 6 and 7, the core comprises horizontal members 82, 83, 84 and 85. At their edges which are in alignment, two vertical lamination members 86 and 87 are disposed. The members 82 to 87, inclusive, are disposed in a U-shaped member 64, the members 82, 83 and 84 and 85 being secured together and to the members 86 and 87 by an interfit of parts, the parts 86 and 87 being drawn toward one another by screws 88, inserted through and counter-sunk in member 87 and threaded into member 86. Clearance holes 88a are provided in the side members for ready access to screws 88. Rivets with counter-sunk heads may be used if desired and the core may be attached to the U-shaped member by rivets or otherwise. The manner of attaching the riser 67 shown in these figures is fully described in the application of William G. Pankonin, heretofore mentioned. The U-shaped member 64 is shown with wings 89 each having an aperture 90 therein for pivoting the beam upon a base.

In such form of core, the clearance between core and side plates may be adjusted to a fine degree of accuracy.

In Figures 4 and 5, the top lamination is offset at its center to provide clearance for rivets. The upper portions of the lamination provide the staple supports while the centrally offset section therebetween seats the rivet heads below the path of the staples therealong. There is space between the laminated core and the adjacent faces of the side plates and also between the inturned edges of the side plates and the adjacent top of the laminated core for the staples to ride freely.

Staples riding on such cores contact the core over a relatively small area. The bridge of the staple is practically free from frictional contact with the core. Only a section of each leg engages the sides of the core. Free movement of staples along the core is thus obtained.

It has already been pointed out that the core may comprise light material because it requires no strength. Likewise it can be of inexpensive material because no strength is required and because the material is concealed except for a small section. Handling is facilitated because strips may be more readily formed and "tooled" than solid bars, and may be fully shaped before assembly, thus reducing cost materially. Such a core combined with a stapling machine is illustrated in Figure 10.

In Figures 8 and 9, another form of magazine with laminated core is illustrated. Figures 11 and 12 comprise enlarged sectional views of the core shown in Figures 8 and 9 but are taken at different transverse planes. This form is more particularly described and claimed in the application of William F. Weber for Stapling machine core, Serial No. 156,683, filed July 31, 1937. It comprises a U-shaped member 464, a rib 465 riveted or otherwise fastened at 466 at spaced intervals therealong, to the center of U-shaped member 464, and side laminations 467 and 468. The side members are each independently mounted for movement toward and away from the center rib 465 and vertically toward or away from the floor of U-shaped member 464.

For the vertical adjustment just described, adjusting screws 469 extend through the members 467 and 468. For movement toward and away from the center rib 465, adjusting screws 470 are arranged transverse of the side members 467 and 468. To maintain adjustments of adjusting screw 470, locking screws 471 may be employed. Clearance holes 472 are provided in the sides of U-shaped member 464 for access to the adjusting screws.

As many of such adjusting screws 470 and 469 as are necessary are disposed along the side members. There is generally enough play between the side members and the rib and the side members and the bottom of the U-shaped member 464 not to produce undue strains upon the several adjusting screws during the adjustments necessary to correctly center the core members within the channel.

If desired, the core may be made of strips and collars or washers. As for example, in the device shown in Figures 8 and 9, washers may be used about screws 471 between side members 467 and 468 on the center rib to produce a core of correct transverse dimensions.

Reference should be had now to Figures 13 and 14. The beam illustrated in Figure 13 comprises an inverted U-shaped member 501, L-

shaped side members 502 each having an in-turned flange 503, and transverse rivets 504 (of which only one is shown) securing side members 502 to member 501.

5 Vertical rivets 505 (of which only one is shown) extend upwardly from the transverse section of member 501 and through a series of washers 506 and a strip 507 which has a central depressed longitudinal groove 508 to receive and seat the  
10 head of rivet 505, the depth of the groove being such that the head of rivet 505 is below the level of the side sections of strip 507.

In this form of the invention, the bridges of the rivets ride on the tops of the sides of the strip  
15 507 and the legs are guided by the short straight sides thereof, the remainder of the legs of the rivets swinging free.

Figure 14 illustrates a beam having a U-shaped outer housing 510, having inturned flanges 511, the housing having a center rib 512 which may be a separate piece welded to the bottom of housing 510 or otherwise secured thereto. If preferred the rib 512 may be a tang struck up from the bottom of housing 510.

5 Screws 513 may be threaded into (or through) the rib 512. Such screws 513 (of which only one is shown) support side pieces or strips 514 which are spaced from rib 512 by washers 515 which circle the shanks of screws 513.

0 Staples ride upon the core just described with the ends of their bridges upon the narrow edge

of strip 514, and the legs of the staples parallel to and alongside the wide faces of such strips.

What is claimed as new and is desired to be secured by Letters Patent of the United States is:

1. A beam magazine for a stapling device comprising a member for limiting the outward displacement of staples, a core of laminated strips for supporting and guiding such staples and over which the legs of the staples extend, the topmost of said strips having an offset section, and core fastening means in said offset section. 10

2. A magazine for preformed staples comprising an elongated channel shaped portion having a bottom portion and side portions, inturned flanges on the top part of said side portions, a core extending within said channel shaped portion longitudinally thereof, said core comprising a plurality of laminations of material, the bottommost lamination resting upon said bottom portion, other laminations resting upon said bottom lamination, said laminations having their longitudinal sides spaced from said side portions, the topmost lamination being spaced from said flanges, and means securing said laminations to each other and to said bottom portion whereby  
15 staples are constrained to ride upon said core with their legs depending between said longitudinal sides of said laminations and said side portions. 20 25

WILLIAM F. WEBER. 30