

May 28, 1929.

H. B. WALTER

1,714,532

APPARATUS FOR TAPING BOXES

Filed April 29, 1927

3 Sheets-Sheet 1

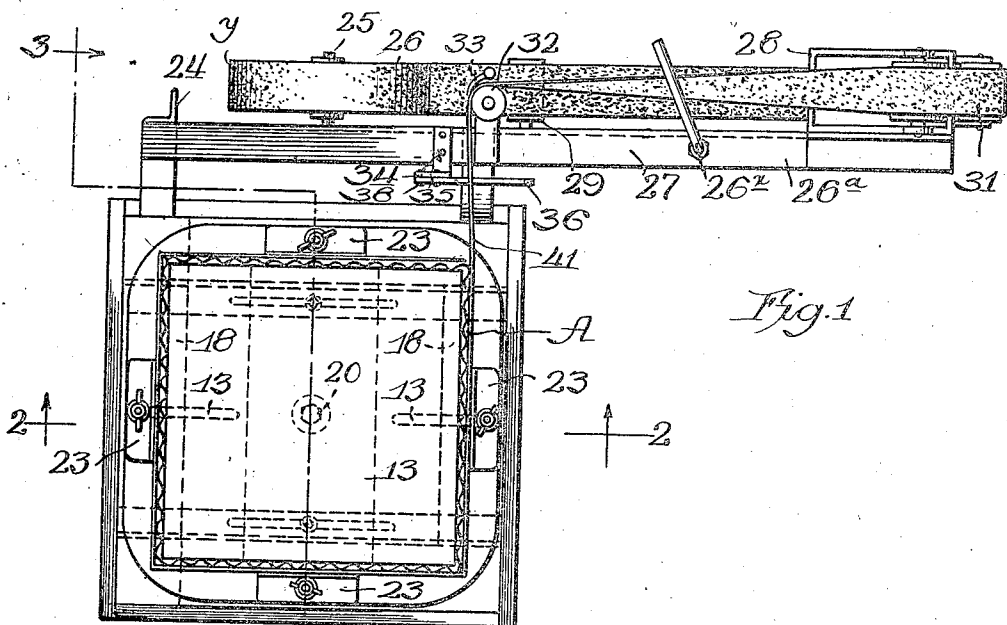


Fig. 1

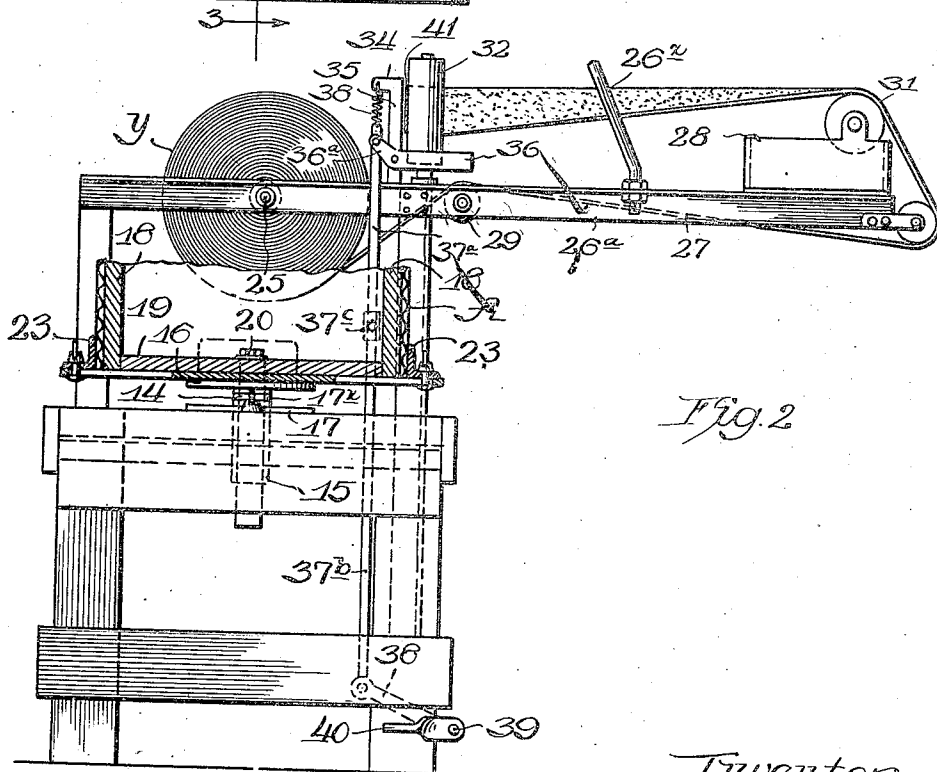


Fig. 2

Witness:
Chas. R. Kousch.

Inventor,
 Harrison B. Walter,
 by *Clarence E. Wehlhoff* Atty.

May 28, 1929.

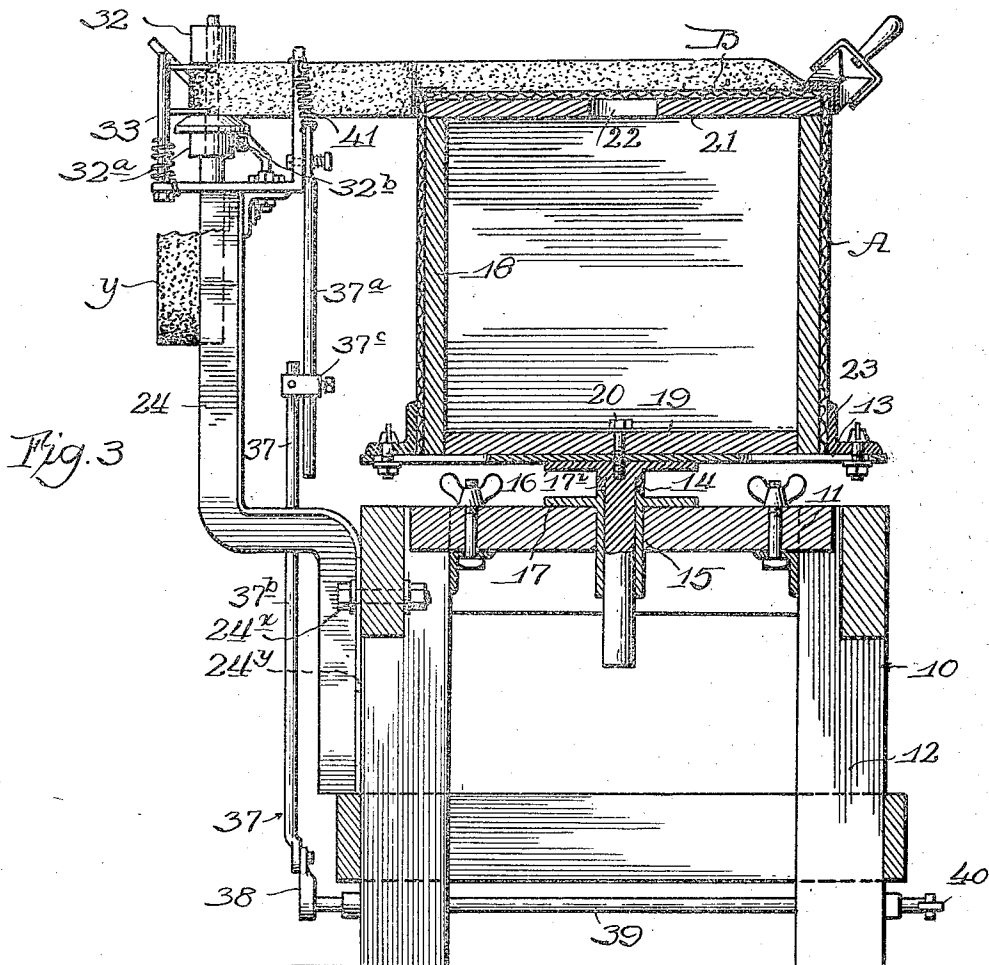
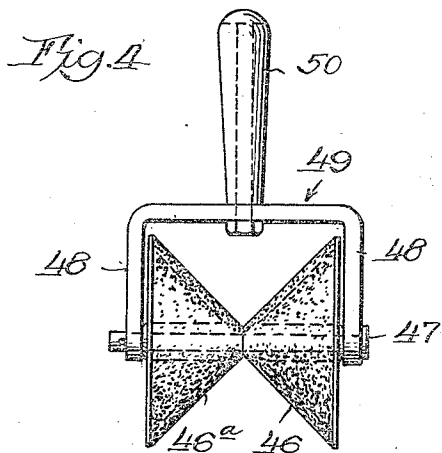
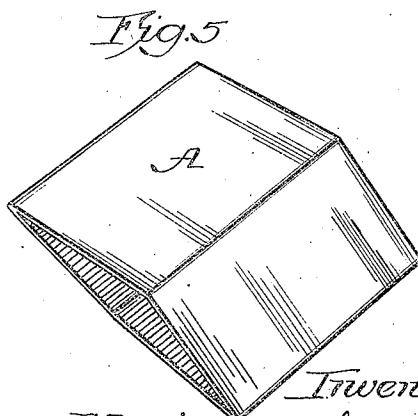
H. B. WALTER

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3 Sheets-Sheet 2



Witness:
Chas. L. Housh

Inventor:
Harrison B. Walter
 by *Clarence E. Mchloffe* Attorney

May 28, 1929.

H. B. WALTER

1,714,532

APPARATUS FOR TAPING BOXES

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3 Sheets-Sheet 3

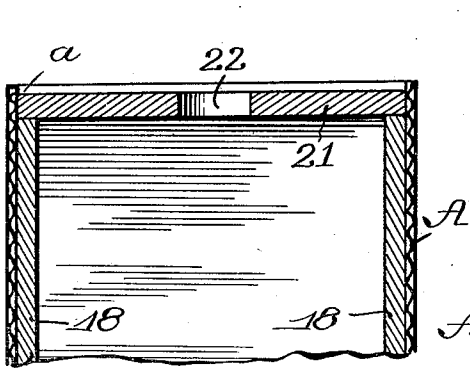


Fig. 6

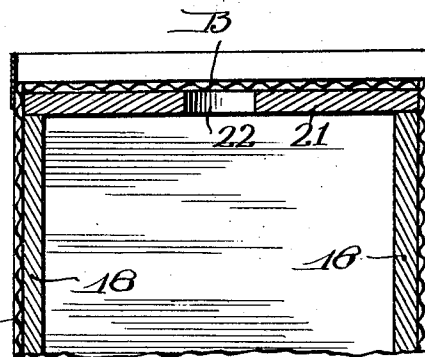


Fig. 7

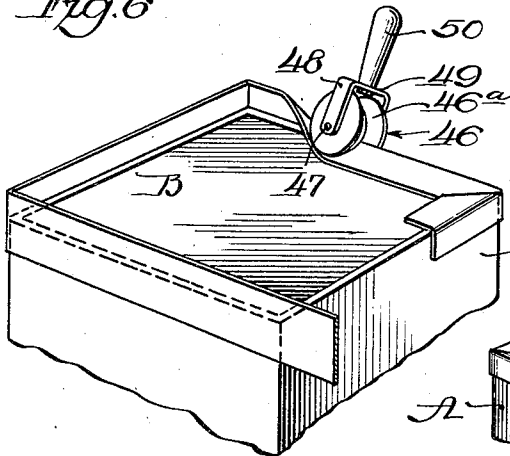


Fig. 8

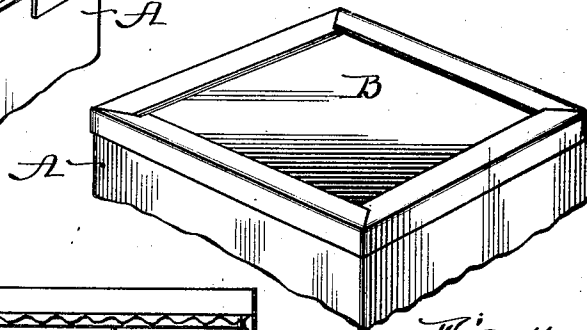


Fig. 11

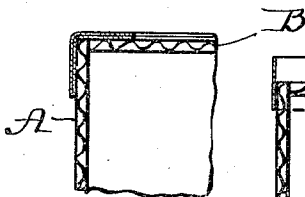


Fig. 9

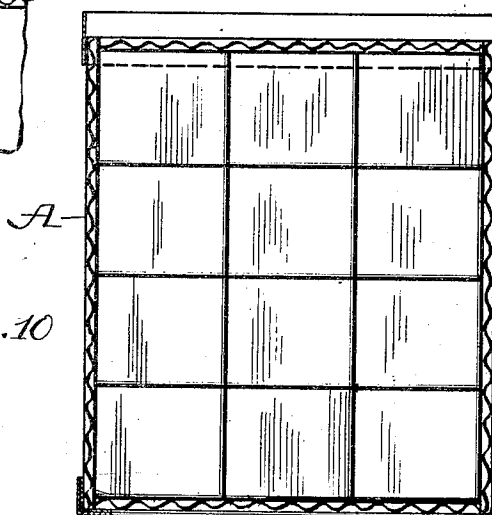


Fig. 10

Witness:
Chas. F. Korsch.

Inventor:
Harrison B. Walter,
by *Charles E. McKelvey*
his Atty.

UNITED STATES PATENT OFFICE.

HARRISON B. WALTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO CONTAINER CORPORATION OF AMERICA, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

APPARATUS FOR TAPING BOXES.

Application filed April 29, 1927. Serial No. 187,672.

This invention relates to a novel and improved apparatus for taping boxes and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In an application heretofore filed by me on May 18, 1923, Serial No. 639,727, I have described a fibre or paper board box consisting of a tubular body and of a head or heads closing the body, with each head secured to the body by means of gummed tape wound in a succession of windings about the box and with part of its width secured to the body and the other part to the head, thereby rigidly connecting the head and body together.

The object of the present invention is to provide an apparatus by means of which the tape used for securing the head to the body of such a box may be rapidly and quickly applied in the manner described. The advantages of the invention will appear more fully as I proceed with my specification.

In the drawings:—

Figure 1 is a top plan view of my improved taping apparatus.

Figure 2 is a view representing a side elevation of the apparatus, part of it being shown in section.

Figure 3 is a view representing a central section through the apparatus in a plane indicated by the line 3—3 of Figure 1.

Figure 4 is a top plan view of a taping implement used in said apparatus.

Figure 5 is a perspective view of a partly collapsed box body to which a head may be applied by means of the apparatus.

Figure 6 is a vertical sectional view through the form on which the box body is mounted when a head is to be applied, with a tubular body shown thereon.

Figure 7 is a view similar to Figure 6 with the head of the box applied and the tape in the position it occupies when first applied to the box.

Figure 8 is a perspective view of a part of a box illustrating the operation of the implement shown in Figure 4 when laying the tape, with part of its width on the head and part on the body.

Figure 9 is a detail sectional view of the part of the box adjacent the head, showing the tape as it appears when applied to the head and body.

Figure 10 is a sectional view showing a

box, packed, with the head in process of being applied and taped to the body.

Figure 11 is a perspective view of the head end of a box illustrating the tape as it appears when finally applied.

Referring now to that embodiment of the invention illustrated in the drawings:—10 indicates a table having a top 11 and legs 12. This table may be of any suitable construction and is so constituted as to provide a rigid structure. 13 indicates a rotary table or platform mounted on the table top 11. Said platform is fixed on a flanged spindle 14 which is rotatably mounted in a vertical flanged sleeve 15 disposed in a suitable opening in the table top 11 as shown. The flange 16 of the spindle provides a base for the platform 13 and the flange 17 of the sleeve provides supporting engagement for the sleeve 15 with the table top 11. A collar 17* on the spindle 14 is interposed between the top end of the sleeve 15 and the spindle flange 16 to provide a bearing between the two.

18 indicates a form to receive the body of the box when the first or bottom head is applied thereto. This form is preferably an ordinary wooden box which has the size and form of the inner dimensions of the fibre board box, the head of which is to be applied. There may be provided in connection with the apparatus, one or more of such forms 18 as desired to accommodate boxes of different sizes. The bottom 19 of this form has a centering pin 20 adapted for engagement in a hole or opening in the platform 13 and the top 21 of the box preferably has a hand hole 22 for convenience in lifting the form and removing it from the table.

On the platform are mounted a plurality of brackets 23 which have slotted bases bolted to the platform 13 as illustrated. Said brackets present upright shoulders for engagement with the several upright faces of the box and are capable of adjustment to accommodate boxes of different cross sectional area.

At one side of the table is fixed an upright frame 24 of any suitable construction, preferably made of angle bars. On said frame above the table is a horizontal spindle 25 adapted to receive a roll of tape 26. The frame 24 has a comparatively long horizontal arm 27 extending beyond the table and at the end of which is mounted a box 28 to con-

tain water. 29, 30 and 31 indicate horizontal idle rolls carried by the arm 27 and by the box 28 about which rolls the strip of tape 26^a is led from the roll of tape 26. The roll 31 is
 5 mounted on the water box 28 with its bottom side submerged in the water contained therein. Said roll picks up the water and applies it to the gummed side of the tape as said tape passes over it, in a familiar manner. From
 10 the horizontal roll 31 the tape passes about a roll 32 which is mounted on the frame on a vertical axis. Thus in passing from the spindle 25 the tape changes its path from a horizontal plane to a vertical plane and is guided
 15 in this change by a bar 26^x which rises from the frame 24 and engages the side of the tape which is not gummed. A duplex spring-pressed finger 33 (see Figures 1 and 3) yieldingly holds the tape against the roll 32, and
 20 prevents the severed end from dropping after a box has been taped. A beveled collar 32^a vertically adjustable by set screw 32^b, holds the bottom edge of the tape in the desired horizontal plane and prevents it from running
 25 below that plane as the tape is fed towards the box.

Adjacent the roll 32 is located a shearing device 34. This consists of a fixed member 35 and of a member 36 hinged thereto and adapted to coact therewith to cut the tape.
 30 A vertical connecting rod 37 is pivotally connected to a heel 36^a of the hinged member 36 and is carried down to the bottom of the table where it is connected to a rock arm 38 on a
 35 rock shaft 39, adapted to be actuated by a treadle 40. A coiled spring 41, connecting the rod 37 to a lug on the fixed shear member 35, normally holds the movable shear member 36 out of the way and in inoperative relation.
 40 Manifestly a pressure on the treadle 40 will swing said hinged member 36 in such manner as to cut the tape against the fixed shear member 35, as will be apparent from examination of Figure 2.

45 The connecting rod 37 is preferably comprised of two parts 37^a, 37^b adjustably connected together by a block and set screw 37^c. The frame 24 is also made vertically adjustable on the table 10 as by the bolt 24^x and slot
 50 24^y (see Figure 3), so as to accommodate boxes of different body lengths.

In Figure 4 is shown an implement or tool 45 for laying the tape simultaneously on the head and on the body of the box. Said tool
 55 consists of a roller 46 on shaft 47 mounted in the tines 48 of a fork 49. 50 indicates a handle fixed to the fork 49. The roller 46 is made up of truncated cones 46^a, 46^b fixed together with their truncated heads abutting, their conical axes in alignment and common
 60 to the axis of the shaft 47 and with their conical surfaces diverging at a right angle. The construction is thus that when the tool is applied to the edge of the box as shown in Figure 2, one cone 46^a will closely engage the
 65

side of the box, while the other will closely engage the top of the box. The parts of the tool are made of such strength that considerable pressure may be exerted by it against the parts of the box engaged, and the surfaces of
 70 the cones are preferably coated with rubber or like yielding material.

The apparatus is operated as follows:

A suitable form 18 is selected to receive the tubular body A (see Figure 5) which is to be
 75 headed. Said form is placed on the platform 13 with its centering pin 20 properly locating it on the platform. The tubular body A is then slipped over the form as shown in Figure 6 and its bottom end is brought
 80 down to bear on the platform 13. This leaves the top edges of the tubular body projecting somewhat above the top of the form, as shown at *a* in Figure 6, an amount equal to the thickness of the head to be applied to the
 85 tubular body. A head B for that box is then placed on the top of the form and engaged within the top end of the tubular body A. The head will now lie with its outer face flush with the top edges of the tubular body A, as
 90 shown in Figure 7. The frame 24 (and also the connecting rod 37) are then adjusted to bring the vertical part of the tape 26^a when it passes about the vertical wall 32 into a position where part of its width, preferably one-
 95 half its width, extends below the level of the plane of the top face of the head B and the other part of its width extends above that plane. The tape is then drawn forward along one side of the box and the end part is
 100 by hand adhered to the side of the box body near the top. The part of the width of the tape extending above the box is likewise adhered by hand to the top of the box.

The tool 45 for laying the tape is then applied with the surfaces of its two truncated
 105 cones engaged, one with the part of the tape on the box body and the other on the part of the tape on the head. The tool in this position is then run along the corner at the head of the box laying the tape and adhering it part to the head and part to the box body. When one end of the side of the head is reached the box is turned with the table which
 110 supports it, the tape being wound in the turning movement upon the next following side of the box. The movement of the tool is continued along that side laying the tape as before on the side and top of the box; the box
 115 is given another turn and the operation is continued. At the angle where two sides meet the tool efficiently folds down the tape on the head to form a lap. Sufficient pressure is used in applying the tool to securely
 120 adhere the tape both to the box body and to the head. In this manner the tape is applied in a plurality of windings, as shown in Figure 11, and as many windings are applied as may
 125 be needed in order to efficiently secure the head to the body of the box for the purpose
 130

for which it is intended. After as many windings have been applied as are intended, the shearing device 34 is actuated by the treadle 40 to sever the tape, the end of which is properly adhered to the head and body.

After the one head has been thus applied, the box is turned about with its other open end up and the head already applied in position on a suitable support as the bottom of the box. The box is then packed. In packing, the contents are brought only to a level below the open end of the tubular body which will allow the thickness of the other head to remain unfilled by the contents. The box is then placed with the open end up on the rotary table or platform 13 (the form 18 having in the meantime been removed) and the brackets 23 are adjusted to bear against the upright faces of the box body in order to hold the box securely in position on the platform. The second head is now applied and the tape wound thereon and applied to the head and body in a plurality of windings as before. This finishes the operation,—the box being now ready for shipping.

I claim as my invention:

1. In combination, a rotary platform, a removable box form adapted to be centered on said platform, means for supporting a roll of tape in the neighborhood of said platform, a water trough, a fountain roll immersed therein, means for guiding tape from said tape supporting means over and about said fountain roll and into a path at the level of the top of said box form, and a tape laying tool adapted for close engagement with two surfaces extending at an angle to each other adjacent their intersection.

2. In combination, a rotary platform, a removable box form adapted to be centered on said platform, horizontally adjustable brackets on said platform, a tape supporting spindle adjacent said platform, a water trough, a fountain roll immersed therein, means for guiding the tape from said spindle over and about said fountain roll and into a vertical path at the level of the top of said box form, means for severing the tape in the neighborhood of said box form, and a tape laying tool adapted for close engagement with two surfaces extending at an angle to each other adjacent their intersection.

3. In combination, a base, a rotary platform mounted thereon, a removable box form adapted to be centered on said platform, a vertically adjustable standard on said base adjacent to and rising above said rotary platform, a tape supporting spindle on said standard, a water trough, a fountain roll immersed therein mounted on said standard, means for guiding said tape from said spindle over and about said fountain roll and into a vertical path at the level of the top of said box form and a tape laying tool including a roller consisting of truncated cones abutting at their

truncated ends with their conical surfaces disposed at a right angle to each other.

4. In combination, a base, a rotary platform mounted thereon, a removable box form adapted to be centered on said platform, horizontally adjustable brackets on said platform, a vertically adjustable standard on said base adjacent to and rising above said rotary platform, a tape supporting spindle on said standard, a water trough, a fountain roll immersed therein mounted on said standard, means for guiding said tape from said spindle over and about said fountain roll and into a path at the level of the top of said box form and a tape laying tool including a roller consisting of truncated cones abutting at their truncated ends with their conical surfaces disposed at a right angle to each other.

5. In combination, a base, a rotary platform mounted thereon, a removable box form adapted to be centered on said platform, horizontally adjustable brackets on said platform, a vertically adjustable standard adjacent to and rising above said rotary platform, means on said standard for supporting a roll of tape, a water trough, a fountain roll immersed therein mounted on said standard, means for guiding the tape from said tape supporting means over and about said fountain roll and into a vertical path at the level of the top of said box form, a vertical guide roll in the path of said tape, yielding means adapted to hold said tape against said roll, a tape shearing device on said standard, means for operating said tape shearing device, and a tape laying tool including a roller consisting of truncated cones abutting at their truncated ends with their conical surfaces disposed at a right angle to each other.

6. In combination, a base, a rotary platform mounted thereon, a removable box form adapted to be centered on said platform, horizontally adjustable brackets on said platform, a vertically adjustable standard adjacent to and rising above said rotary platform, means on said standard for supporting a roll of tape, a water trough, a fountain roll immersed therein mounted on said standard, means for guiding the tape from said tape supporting means over and about said fountain roll and into a vertical path at the level of the top of said box form, a vertical guide roll in the path of said tape, yielding means adapted to hold said tape against said roll, a tape shearing device on said standard at the level of the top of said box form, a treadle on said base, vertically adjustable means connecting said treadle with said shearing device, and a tape laying tool including a roller consisting of truncated cones abutting at their truncated ends with their conical surfaces disposed at a right angle to each other.

7. In combination, a base, a rotary platform mounted thereon, a removable box form adapted to be centered on said platform, hori-

zontally adjustable brackets on said platform, a vertically adjustable standard adjacent to and rising above said rotary platform, means on said standard for supporting a roll of tape, 5 a trough, a fountain roll immersed therein mounted on said standard, means for guiding the tape from said tape supporting means over and about said fountain roll and into a vertical path at the level of the top of said box form, a vertical guide roll in the path of 10 said tape, and yielding means adapted to hold said tape against said roll.

In testimony that I claim the foregoing as my invention, I affix my signature this 19th day of April, A. D. 1927.

HARRISON B. WALTER.