Dec. 6, 1932. H. L. BIRUM, SR., ET AL 1,889,913

APPARATUS FOR MAKING STUFFED BARS

Filed April 9, 1930 4 Sheets-Sheet 1

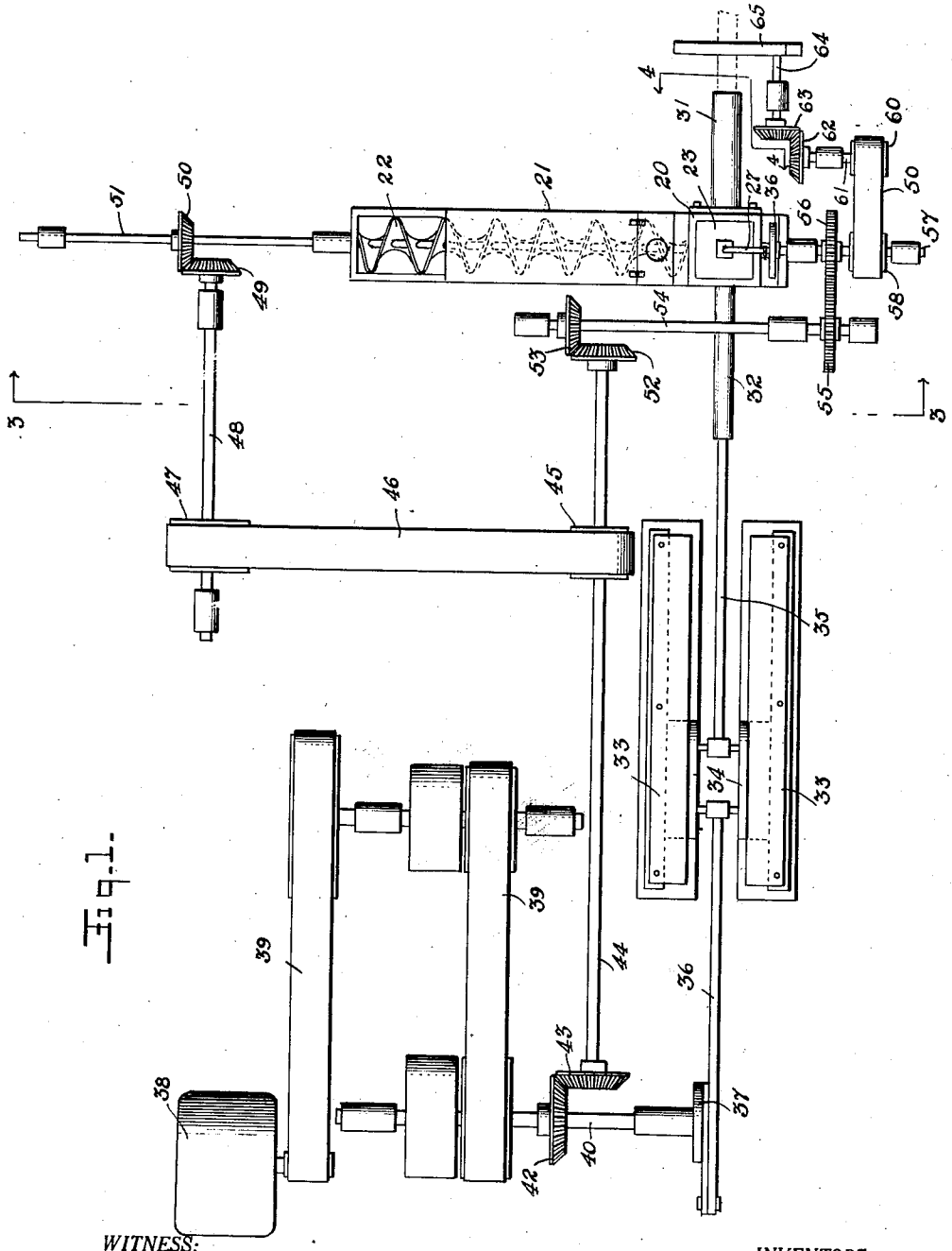


Fig. 1.

WITNESS:

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APPARATUS FOR MAKING STUFFED BARS

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Fig. 3.

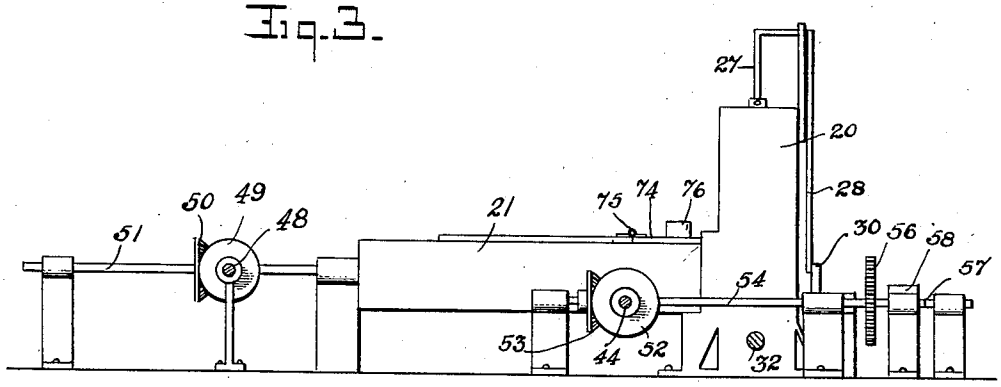
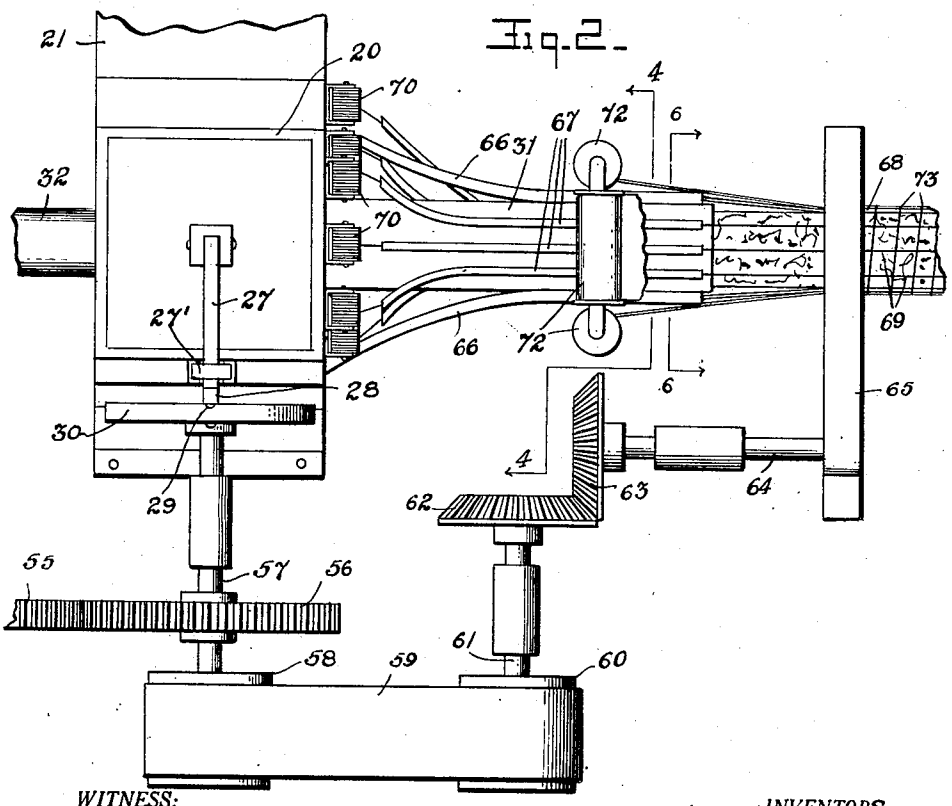


Fig. 2.



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APPARATUS FOR MAKING STUFFED BARS

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Fig. 4.

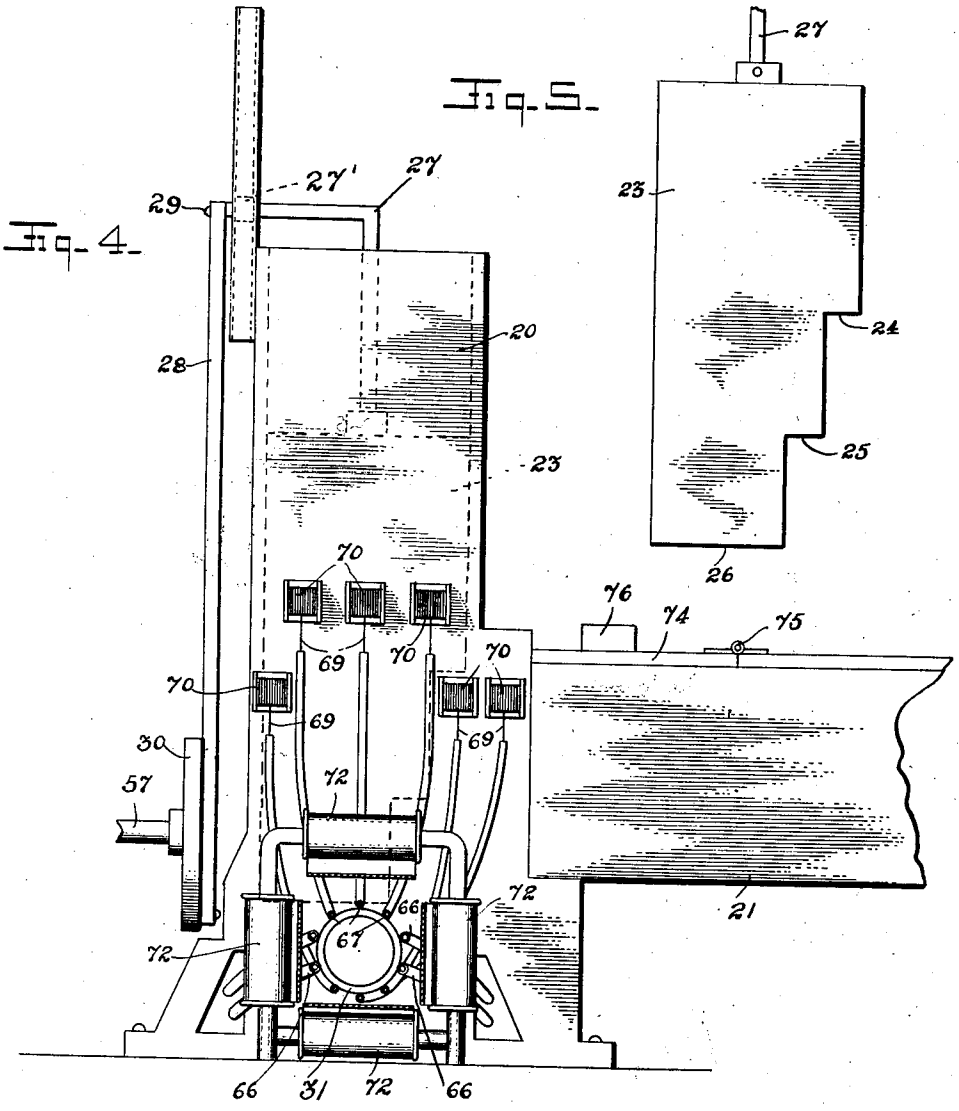


Fig. 5.

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APPARATUS FOR MAKING STUFFED BARS

Filed April 9, 1930 4 Sheets-Sheet 4

Fig. 6.

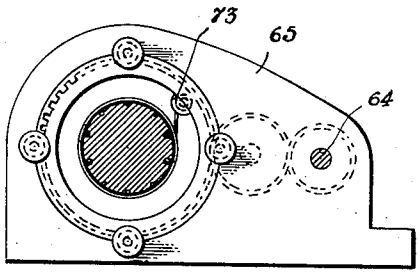


Fig. 9.

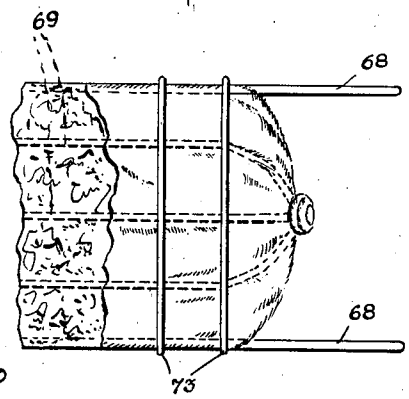


Fig. 7.

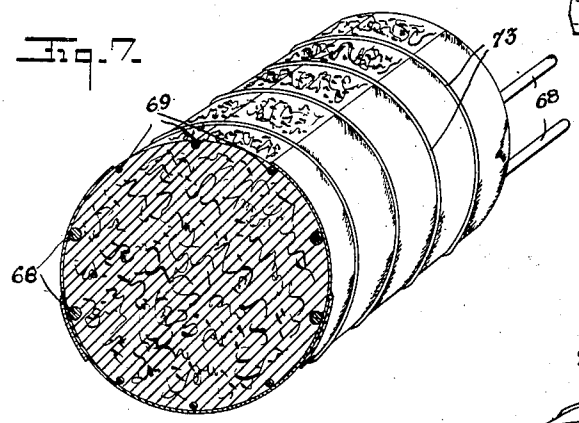


Fig. 8.

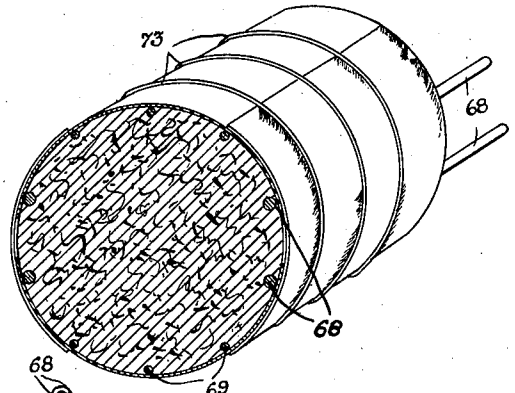
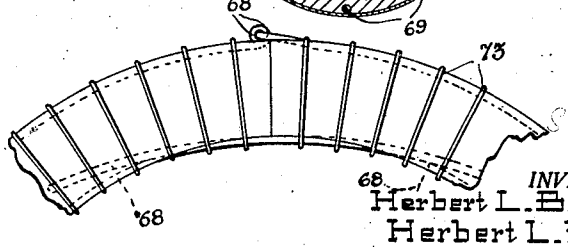


Fig. 10.



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Patented Dec. 6, 1932

1,889,913

UNITED STATES PATENT OFFICE

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APPARATUS FOR MAKING STUFFED BARS

Application filed April 9, 1930. Serial No. 442,970.

This invention relates to method of and apparatus for making stuffed bars and has for an object to produce a bar made by the processes and in the apparatus which shall embody new and improved features of convenience of manufacture and manipulation.

A further object of the invention is to provide by the method and apparatus, a bar composed of fibrous or like material which finds a great variety of utilities, one of which will be in the construction of floral funeral forms.

A further object of the invention is to provide a method of making a bar consisting in forcing the material through a former and as it emerges from the former to apply thereto longitudinally extending and helically wound wires, twine or any other selected material found convenient or expedient.

A further object of the invention is to provide an apparatus which shall provide a former with a plunger for forcing material through the former and to emerge from the former in the form of a compressed bar and then providing means for applying to the emerging bar, longitudinal wires, twine or the like over and upon such longitudinal wires or the like to wind other helical wires, twine or the like.

A further object of the invention is to provide a substantially automatic apparatus which shall take fibrous or like material, move it automatically into a compartment and finally employ a plunger for forcing it out of said compartment into and through a former with means for automatically applying retaining members upon the exterior of the emerging bar.

A further object of the invention is to provide mechanical means for forcing fibrous or like material into, through and without a former applying to the exterior of the emerging compressed bar longitudinally disposed wires or the like with sheet material covering part or all of the bar and winding the covering and the enclosed wires with a helical wire or the like.

The invention therefore comprises the method of compressing into a regular form fibrous or like material applying thereto retaining means consisting of longitudinally extending and helical wound wires or the like with or without sheet material covering part or all of the exterior.

The invention further comprises a machine for compressing a bar, consisting of conveyors and plungers properly arranged to force fibrous or like material into and through a former with properly positioned spools or the like carrying wire or other similar material which shall automatically be applied to the exterior of the emerging bar with other spools carrying sheet material such as paper which shall likewise be automatically applied to the bar and with a mechanism for winding the exterior with or without the sheet material and confine the fibrous or other material in the bar form.

Our invention is directed to other objects and possesses other features of novelty and advantage, some of which, together with the foregoing, will be hereinafter set forth.

In the drawings:

Figure 1 is a top plan view of the machine layout, parts being omitted because of the scale on which the drawing is produced,

Figure 2 is an enlarged detail top plan view of a fragment of the machine,

Figure 3 is a view of the machine in side elevation with the power applying parts in section as indicated by line 3—3 of Figure 1,

Figure 4 is an enlarged detail view in end elevation of the machine as indicated by line 4—4 of Figure 1,

Figure 5 is a view in side elevation of the tamper,

Figure 6 is a view in side elevation of the winder,

Figure 7 is a perspective view of a fragment of one of the completed bars partially covered with sheet material leaving one side open,

Figure 8 is a perspective view of a fragment of a completed bar entirely covered with sheet material,

Figure 9 is a view in side elevation of one end of the bar as showing the manner in which the restraining members are connected as a step in joining, and

Figure 10 is a view of the bar curved into a form with the ends connected.

Like characters of reference indicate corresponding parts throughout the several views.

The machine which forms that part of the invention directed to the apparatus comprises an upstanding chamber 20 into one side of which a chute 21 leads. The chute contains a worm 22 operating as a screw conveyor within the chute 21. The operation of the screw conveyor serves to force material through the conveyor into the chamber 20.

Within the chamber 20, a tamper 23 is mounted to reciprocate, such tamper being shown in side elevation at Figure 5 and comprising a plurality of steps 24 and 25 with the lower or terminal end indicated at 26. This tamper 23 is operated by means of a rod 27 which extends upwardly and without the chamber 20 and making a bend, connects with the cross-head 27′ to which is pivoted the pitman rod 28 at the joint 29, which rod extends downwardly to a pitman wheel 30.

Extending outwardly from the chamber 20, is a former 31. In the drawings, this former is shown as a circular tube, but it is to be understood that it may assume any form or size to provide the required shape for the bar to be made. Mounted opposite the former 31, is a plunger 32 which is in alinement with the former 31 and when it is reciprocated, passes through the lower end of the chamber 20 and a limited distance into the former 31. To reciprocate the plunger 32, guide ways 33 are provided having a cross-head 34 connected with the plunger by the rod 35 and with a pitman 36 extending to the pitman wheel 37.

All these described parts are arranged to operate in proper time relation and are driven from any approved source as the motor 38, shown at Figure 1. Through the proper system of belts indicated generally at 39, a shaft 40 is driven which carries the pitman wheel 37, also a bevelled gear 42, inter-geared with a gear 44 upon the shaft 34. This shaft 44 carries a pulley 45, with a belt 46 passing about a second pulley 47 upon the shaft 48. The shaft 48 is provided with a bevelled gear 49 intergeared with the gear 50 upon the shaft 51 which drives the worm 22.

The shaft 44 also has a bevelled gear 52 inter-geared with the gear 53 upon the shaft 54. The shaft 54 has a spur gear 55 intergeared with the gear 56 upon the shaft 57 which actuates the pitman wheel 30. The shaft 57 also carries a pulley 58 with a belt 59 to the pulley 60 upon the shaft 61. The shaft 61 has a bevelled gear 62 inter-geared with a bevelled gear 63 upon the shaft 64 which drives the winder 65 shown in side elevation at Figure 6. The winder per se forms no part of the present invention and the well known mechanical expedient is simply employed in combination in the present organization. It will be noted especially from Figures 1 and 2 that the winder sets a spaced distance from the former 31 for the reason which will be hereinafter made more clear from the explanation of the operation.

The system of gearing, belting, power transmission and distribution is intended to be only illustrative and any efficient and approved organization therefor may be employed.

Mounted about the former 31 are a plurality of conduits of different sizes. The conduits 66 being larger than the intermediate conduits 67. Through the large conduits 66, relatively stiff frame wires 68 are inserted passing outwardly beyond the end of the former and lying along side the bar forced through the former. Through the smaller conduits 67, smaller or fine and flexible wires or twine 69 are inserted passing and lying also along the side of the completed bars. These smaller wires 69 are preferably taken from spools 70 mounted at any convenient point for properly feeding into the smaller conduits 67.

Also mounted about the former 31, are a plurality of spools 72 of paper or other sheet material. The winder 65 carries also a spool of fine wire 73 which is wound helically about the bar as it emerges from the former.

This bar is of any desired material. In the practice of making the bar for the production of floral funeral forms, the present practice indicates the use of an article commercially known as sphagnum moss, but it is to be understood that the invention is in no way limited to the use of this material and that any other fibrous or like material including without limitation, such materials as shredded or torn paper, cotton linters, sawdust, excelsior and the like within the scope of the useable materials.

Also, it is to be understood that while in the practice of this invention, it seems at the present time, desirable to employ wires extending longitudinally and spirally also the term "wires", wherever employed, would include any form of material which could be similarly employed including cordage and the like.

Also, while there has been shown in the drawings two of the larger conduits 66, upon each side indicating the use of four of the frame wires, it is to be understood that the number may be increased or either one or both of these wires may be omitted as the utility of the desired bar may dictate and the smaller wires 69, may also be omitted using only the sheet material upon the exterior of the bar and wound by the spiral winding.

In the present practice, this sheet material is best exemplified by waxed paper, and in the production of floral funeral forms, such

paper will under the present practice be employed, but it is to be understood that any type of sheet material may be substituted.

There has also been shown in the drawings, four of the spools 72, carrying this paper or other sheet material and by the use of four of such strips of paper the entire bar will be covered with the several strips overlapping. In the production of floral forms, it is many times found expedient and desirable to omit one or more of these strips producing a bar open at one side as indicated more particularly at Figure 7 which facilitates the introduction of flower stems into the material of the bar.

In operating the machine to practice the present method, fibrous material which may merely for convenience, be referred to as moss, without limiting the usable materials thereto, is fed into the conveyor 21 at the open space indicated at Figure 1 and is by the worm wound along the conveyor 21 to the chamber 20. As the amount of moss thus introduced may not always correspond exactly with the amount required, and as a larger amount is desirable rather than a lesser amount, a safety device is provided in the form of a door 74 hinged at 75, and preferably, though not necessarily, provided with a weight 76 so that in case of a surplus of material being fed into the conveyor, the door 74 will rise to relieve the pressure and will also serve as notice to the operator to temporarily discontinue the feeding. The material passing from the conveyor into the chamber 20 is operated upon by the tamper 23 which moves vertically within the chamber in the manner described and the steps 24 serve to gradually move the material downwardly toward the former 31, the final termination of the tamper 26 being directly over the former and likewise over the plunger 22. While the tamper 23 is down and holding the moss in somewhat compressed condition, the plunger 32 operates to pass through the chamber 20 and into the former 31 carrying therewith a portion of the material. By reason of the friction within the former 31, the material therein will be compressed into the form of the former itself and will emerge therefrom in such form.

The wires 68 and the intermediate wires 69 will be passed through their respective conduits and manually engaged over the end of the emerging bar. The continuous emergence of the bar will continue to feed these wires 68 and 69 so that as the bar progresses, these wires are carried about and properly spaced longitudinally of the bar and in spaced relation circumferentially thereof. The bar will pass through the opening in the winder 65 which is being rotated so that the wire 73, carried by the spool, will be wound helically about this traveling bar, the relation of such several wires being shown more particularly at Figure 2.

This will construct one type of bar in its completed form. If however, it is desired to produce a bar wholly or partially covered with paper or sheet material, the strips of paper or like material upon the spool 72, are drawn outwardly and on to the bar before the bar reaches the winder and the wires 73 are then wound around the exterior of these sheets of material. As previously explained, four of these strips of paper are provided for and when the method is completed, the bar will be in the form shown at Figure 7 with the form wires 68 and the intermediate wire 69 covered by the paper and all wound helically about by the wire 73. If however, it is desirable to produce an open sided bar, one or more of these strips is omitted and the type thus produced is exemplified by the drawing shown at Figure 7.

These completed bars lend themselves to a great variety of uses. They are, for instance, used for the production of floral forms for funerals and are cut into such sections as are required and bent to form. When cut, they are cut somewhat longer than the exact required length and a small amount of the stuffing removed from each end and the small wires gathered together as shown at Figure 9 to enclose the stuffing and prevent its escape. When the bar has been bent to the required form, the opposite ends thus produced are brought together with force to form a substantially unnoticeable joint and the bar is maintained in such form by properly twisting or bending the form wires 68. When these bars are bent, it will be obvious that the form wire 68, being relatively stiff, will be longer upon the exterior of the article than upon the interior. For instance, if a circular wreath be formed, the form wires within the wreath will by reason of the bending, extend themselves a considerable distance beyond the ends of the bar. These ends may overlap and be inserted into the material of the bar as shown at Figure 10, while the exterior wires may be united as there shown or in any form. This well provides a joint which will be as firm and unyielding as other parts of the form.

While an arcuate section has been shown at Figure 10, indicating a complete circular wreath, it is obvious that the bar may be made up in any form found desirable and to supply the need. If employed for floral forms, the fibrous material is of course, dampened and the stems of flowers inserted therein to complete the floral design. While, as explained, this use would, at the present time, indicate the larger field for the bar, it may be mentioned that the bar may be wrapped upon the exterior with garland roping or tinsel wrapping covering the entire surface, which effect would be utilized for Christmas wreaths

or the like and will prove one of the considerable utilities for the bar. In such condition, moisture is not desired and the bar may be stuffed with material which would not lend itself to moisture, such as shredded or torn paper; there being many other materials which may be substituted for those already mentioned.

Of course, the method of and apparatus for producing a stuffed bar, herein illustrated may be modified in various ways without departing from the invention herein set forth and hereinafter claimed.

The invention is hereby claimed as follows:

1. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, and means to apply a winding to the progressing bar.

2. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending members to the exterior of the bar, and means to apply a winding to the progressing bar.

3. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending bendable members to the exterior of the bar, and means to apply a winding to the progressing bar.

4. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending form retaining members to the exterior of the bar, and means to apply a winding to the progressing bar.

5. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending wire members to the exterior of the bar, and means to apply a winding to the progressing bar.

6. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply sheet material to the exterior of the bar, and means to apply a winding to the progressing bar.

7. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply strips of sheet material in spaced relation to the exterior of the bar, and means to apply a winding to the progressing bar.

8. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending members to the exterior of the bar, means to apply sheet material to the exterior of the bar, and means to apply a winding to the progressing bar.

9. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending bendable members to the exterior of the bar, means to apply sheet material to the exterior of the bar, and means to apply a winding to the progressing bar.

10. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending form retaining members to the exterior of the bar, means to apply sheet material to the exterior of the bar, and means to apply a winding to the progressing bar.

11. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending wire members to the exterior of the bar, means to apply sheet material to the exterior of the bar, and means to apply a winding to the progressing bar.

12. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending members to the exterior of the bar, means to apply strips of sheet material in spaced relation to the exterior of the bar, and means to apply a winding to the progressing bar.

13. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending bendable members to the exterior of the bar, means to apply strips of sheet material in spaced relation to the exterior of the bar, and means to apply a winding to the progressing bar.

14. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending form retaining members to the exterior of the bar, means to apply strips of sheet material in spaced relation to the exterior of the bar, and means to apply a winding to the progressing bar.

15. An apparatus for producing a stuffed bar comprising a former, means to extrude material from the former, means to apply longitudinally extending wire members to the exterior of the bar, means to apply strips of sheet material in spaced relation to the exterior of the bar, and means to apply a winding to the progressing bar.

16. An apparatus for producing a stuffed bar comprising a chamber, a former communicating with one side of the chamber, a plunger mounted to reciprocate through the chamber and into the former, a tamper operating in the chamber and adapted to hold material in position to be operated upon by the plunger, a conveyor for moving the material into the chamber, and means for applying a form retainer to the exterior of the outcoming bar.

17. An apparatus for producing a stuffed bar comprising a chamber, a former communicating with one side of the chamber,

a plunger extending through the opposite side of the chamber and in alinement with the former, means to reciprocate the plunger to pass entirely through the chamber and a limited distance into the former, means to hold material in the chamber in position to be acted upon by the plunger, and means to progressively apply a form retainer to the exterior of the outcoming bar.

18. An apparatus for producing a stuffed bar comprising a chamber, a former extending from one side of the chamber and in communication therewith, a plunger extending through the side of the chamber and in alinement with the former, means to reciprocate the plunger longitudinally entirely through the chamber and a limited distance into the former, a tamper within the chamber mounted to reciprocate and hold material in position to be acted upon by the plunger, means to introduce material in the chamber to be acted upon by the tamper, and means to apply a longitudinally extending form retainer to the exterior of the outcoming bar.

19. An apparatus for producing a stuffed bar comprising a chamber, a former extending from one side of the chamber and in communication therewith, a plunger mounted in alinement with the former, means to reciprocate the plunger entirely through the chamber and a limited distance into the former, a tamper mounted to reciprocate within the chamber upwardly and downwardly relative to the plunger, said tamper being provided with a plurality of steps, means to move material into position to be engaged by the steps, and means to apply a winding to the exterior of the outcoming bar.

20. An apparatus for producing a stuffed bar comprising a chamber, a former extending from one side of the chamber and in communication therewith, a plunger mounted in longitudinal alinement with the former, means to reciprocate the plunger through the chamber and a limited distance into the former and means mounted upon the exterior of the former supporting restraining members adapted to be connected with the bar forced from the former by the plunger.

21. An apparatus for producing a stuffed bar comprising a chamber, a former extending at one side of the chamber and in communication therewith, a plunger mounted in alinement with the former, means to reciprocate the plunger through the chamber and a limited distance into the former, conduits mounted externally of the former adapted to guide wires passing therethrough into engagement with the exterior of the bar emerging from the former.

22. An apparatus for producing a stuffed bar comprising a chamber, a former extending from one side of and in communication with the chamber, a plunger mounted in alinement with the former, means to reciprocate the plunger through the chamber and a limited distance into the former, means to move material into the chamber in position to be acted upon by the plunger, conduits arranged about the exterior of the former and having their ends terminating approximately coincidentally with the former adapted to guide wires passing therethrough into positions externally of the bar as it emerges from the former and a winder spaced from the end of the former adapted to wind a wire helically about the bar advanced by the plunger.

23. An apparatus for producing a stuffed bar comprising a chamber, a former extending from and communicating with the chamber, a plunger mounted in alinement with the former, means to reciprocate the plunger through the chamber and a limited distance into the former, a conveyor adapted to move material into the chamber, a tamper moving in the chamber adapted to hold the introduced material in position to be acted upon by the plunger, conduits secured to the exterior of the former, some of said conduits being larger than others, adapted to guide wires passing therethrough the larger conduits lying along side the emerging bar, the other conduits adapted to guide other wires to positions lying longitudinally of the emerging bar and a winder adapted to wind a wire helically about the bar and wires as they are moved forward by the action of the plunger.

24. An apparatus for forming a stuffed bar comprising a chamber, a conduit extending from one side of and communicating with the chamber, a plunger mounted in alinement with the former, means to reciprocate the plunger through the chamber and a limited distance into the former, guide members located adjacent the end of the former remote from the chamber, adapted to guide wires passing therethrough to lie along side the bar emerging from the former and a winding mechanism for winding a wire helically about the bar advancing under the action of the plunger.

25. An apparatus for forming a stuffed bar comprising a chamber, a former extending from and in communication with the chamber, a plunger mounted to force material into and through the former, means to apply strips of sheet material applied to the exterior of the bar as the bar emerges from the former and a winder for winding the exterior of the applied sheets helically.

26. An apparatus for producing a stuffed bar comprising a chamber, a former extending from and in communication with the chamber, a plunger mounted to move material from the chamber into the former under compression and to cause its emergence from the former, spools adapted to hold sheet material mounted adjacent the end of the former remote from the chamber and in position to be applied to the exterior of the bar as it

emerges from the former and a winder adapted to wind the exterior of the applied sheet material helically as the bar advances under the action of the plunger.

27. An apparatus for producing a stuffed bar comprising a chamber, a former extending from and in communication with the chamber, a plunger mounted to force material into the former and therefrom as a bar corresponding to the form of the former, means to mount a plurality of wires adjacent the former to be applied to the exterior of the emerging bar, means to mount a plurality of strips of sheet material adjacent the former to be applied to the exterior of the bar, and means to wind the exterior of the applied sheets as the bar advances under the action of the plunger.

28. An apparatus for producing a stuffed bar comprising a chamber, a former extending from and in communication with the chamber, a plunger mounted to reciprocate through the chamber and into the former and to force the material from the former by compression as a bar corresponding to the form of the former, means to mount a plurality of wires adjacent to the exterior of the former and applied to the exterior of the emerging bar to advance therewith, means to mount a plurality of strips of sheet material adjacent the former, said strips of material being sufficient to cover a part only of the bar and to advance with the bar as it emerges and upon the exterior of the wires and means to wind the exterior of the sheet material and bar as the bar progresses under the action of the plunger.

In testimony whereof we have signed our names to this specification.

HERBERT L. BIRUM, SR.
HERBERT L. BIRUM, JR.