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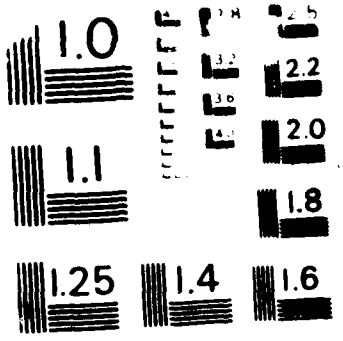
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DEVICE FOR WINDING HOLLOW PLASTIC ARTICLES

by

F.P. Org, G.G. Pil'var

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HUMAN TRANSLATION

FTD-ID(RS)T-0048-88 9 February 1988

MICROFICHE NR: FTD-88-C-000218

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By: F.P. Org, G.G. Pil'var

English pages: 5

Source: USSR Patent Nr. 214076, 20 March 1968, pp. 1-2

Country of origin: USSR
Translated by: Carol S. Nack
Requester: FTD/TQTR
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Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

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DEVICE FOR WINDING HOLLOW PLASTIC ARTICLES

F. P. Org, G. G. Pil'var

We know of a device for winding hollow plastic articles which contains a mechanism for continuously feeding the plastic blank, e.g., a bar or strip; a rotating mandrel which has the same configuration as the finished article; a mobile carriage driven by a lead screw to impart translational movement to the mandrel relative to the blank feed mechanism; and a common synchronous electric drive for turning mandrel and the lead screw.

The proposed device is different from the known one because the lead screw is linked with a rotating worm wheel which has a drive that is programmed according to the required variation in the winding pitch through time.

This difference makes it possible to smoothly vary the winding step while winding the article; this is necessary in order to obtain intricately-shaped articles.

Figure 1 illustrates the process of manufacturing an article on the proposed device, while Fig. 2 gives a diagram of the device.

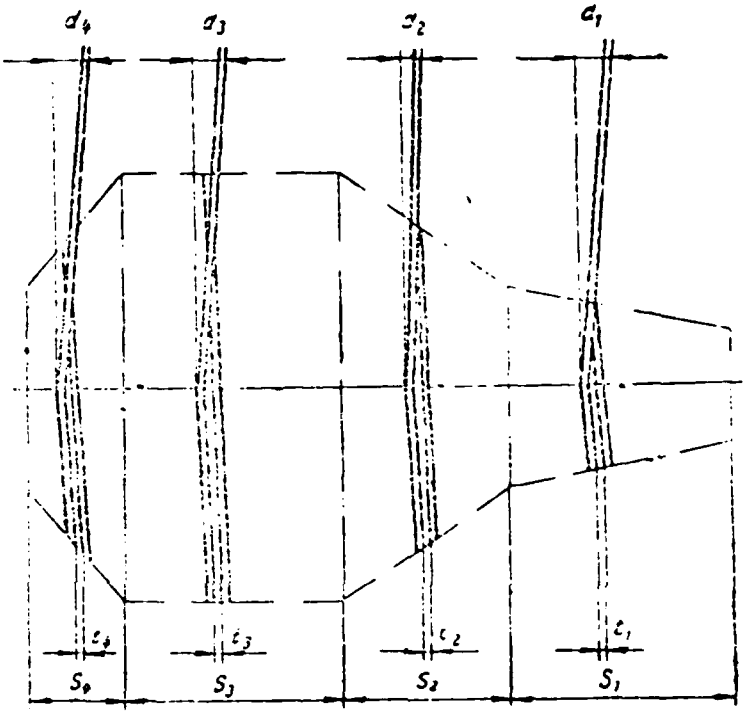

Fig. 1.

The proposed device makes it possible to manufacture a body of revolution with any shape by winding a strip, cord or tube made of heat-softening material onto a rotating mandrel with the corresponding shape.

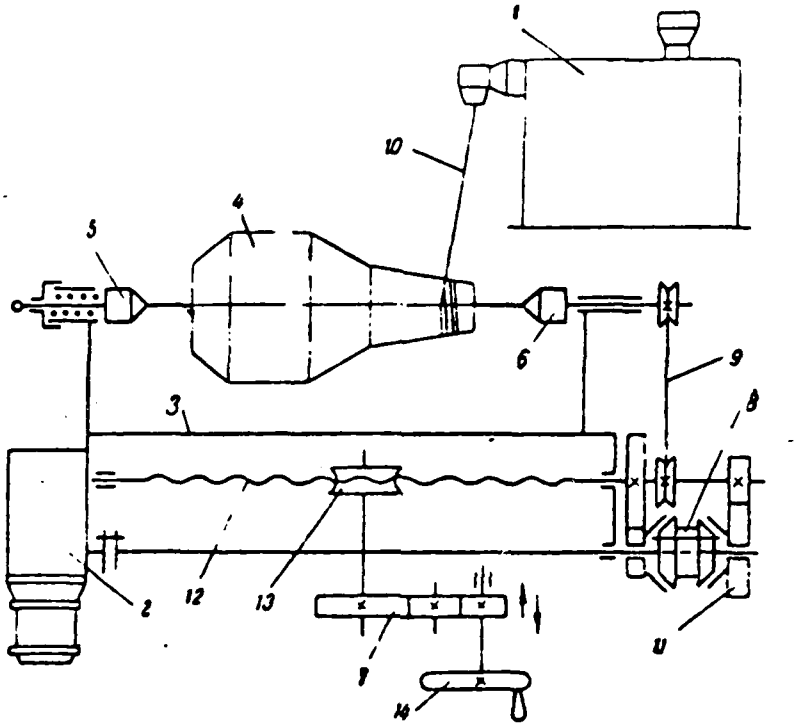

Fig. 2.

The following conditions must be met when winding intricately-shaped bodies of revolution:

- the rotational and translational motions of the mandrel must be connected so that the mandrel must be moved in the axial direction by one strip width, cord thickness or tube diameter, i.e., by one winding space t_1-t_4, during one complete revolution (see Fig. 1);

- it must be possible to continuously control the mandrel rotation rate during the winding process according to the change in the

diameter of the body of revolution being wound and the rate at which the strip, cord or tube comes out of the extruder;

- it must be possible to continuously control the winding pitch t_1-t_4 during the winding process according to the variation in the diameter of the body of revolution. The winding pitch t_1-t_4 must be different in different sections S_1-S_4 of the body of revolution being wound;

- it must be possible to continuously control the winding angle α_1—α_4 (the angle at which the strip, cord or tube is wound onto the mandrel) during the winding process according to the variation in the body of revolution.

The winding angle α_1—α_4 must be different in different sections of the body of revolution being wound.

The described device consists of an extruder 1 (see Fig. 2), electric drive 2, carriage 3 which moves on runners, mandrel 4 installed between the centers 5 and 6 of the carriage, mechanism 7 for continuously varying the winding pitch and angle, clutch 8 for abruptly changing the winding pitch in during winding, and belt transmission 9 for driving the mandrel and the device for continuously varying the rotation rate of the electric motor.

The device operates as follows.

The strip, cord or tube 10 comes out of the extruder head. The winder is next to the extruder; mandrel 4 with the required configuration is installed between the centers of this winder. The electric drive rotates lead screw 12 through gearing 11 and clutch 8. The gearing and clutch make it possible to instantaneously change the winding pitch during the process. Rotation is imparted to the mandrel 4 onto which the article is wound through this same gearing and belt transmission 9.

The lead screw is constantly linked to the worm wheel (flywheel) 13, which is fixed to the frame and is also linked with flywheel 14 through the gearing. If it is necessary to change the winding pitch or angle when an article is being wound, this can be accomplished by turning the flywheel 13 to the appropriate side.

Thus, by instantaneously varying the rotation rate of the lead screw during the process, it is possible to wind decorative lattices for lighting fixtures.

Subject of Invention

This invention is a device for winding hollow plastic articles which consists of a mechanism for continuously feeding the plastic blank, e.g., a bar or strip; a rotating mandrel which has the same configuration as that of the finished article; a mobile carriage

driven by a lead screw to impart the mandrel with translational movement relative to the blank feed mechanism; and a common synchronous electric drive for rotating the mandrel and the lead screw. It is different because in order to continuously control the winding pitch when winding an article, the lead screw is linked to a rotating worm wheel which has a drive programmed to make the required variations in the winding pitch through time.

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