Engraved Rolls
АИВ.02.060А

CERTIFICATE
АИВ.02.060А

1. General

1.1 product name	- Engraved Rolls
1.2 product designation	-АИВ.02.060А
1.3 output date	26.02.2021
1.4 the serial number of the product	2874
1.5 name of manufacturer	LTD ABB 100

2. Assignment

The engraved rolls (Fig. 1) are intended for roll embossing of the thin beeswax band which is used in production of the honeycomb bases.

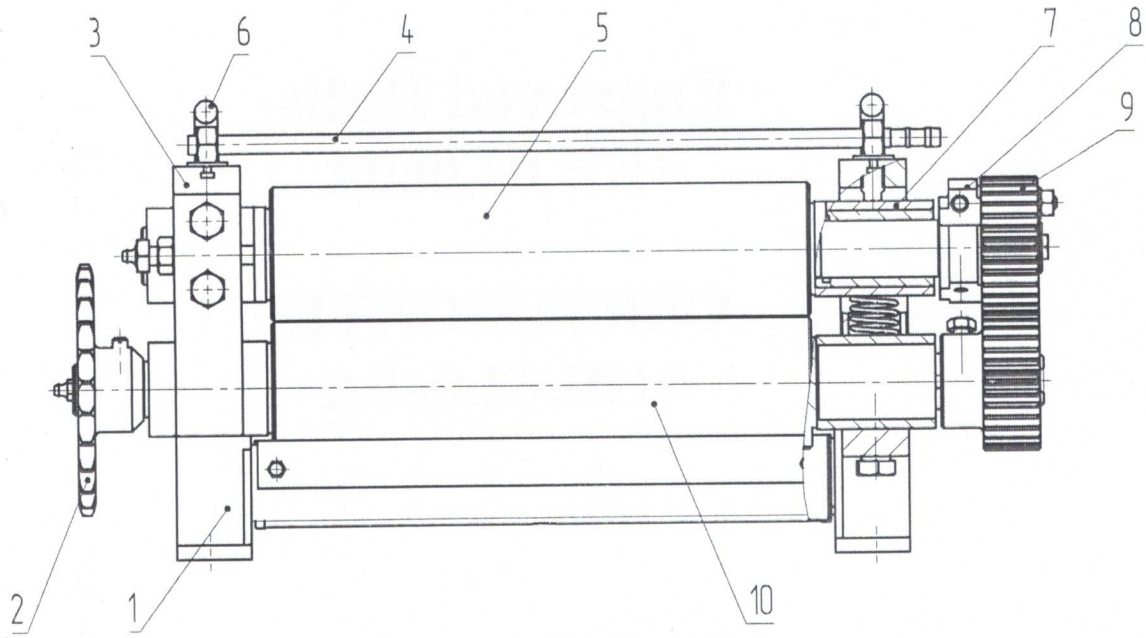

Fig. 1

1 - bedding; 2 - sprocket; 3 - stake; 4 - pipe; 5 - upper roll; 6 - pressing screw;

7 - movable bearing; 8 - carrier; 9 – gear; 10 - lower roll.

3. General design

General design is shown in Fig.1.

Fastened to the bedding of the rolls are two stakes 3. The movable bearings 7 into which the upper engraved roll 5 is rotated, are installed in the openings of the stakes.

The lower engraved roll 10 is rotated in the bushings which are press – fitted into the stakes.

The rolls are connected by the gears 9. The rolls are put in rotation through the sprocket 2 installed on the lower roll.

For regulation of the upper engraved in the vertical and horizontal planes there are provided the lateral, end face and the pressing screws 6.

Lubrication of roll necks is performed by lubricator

4. Setting up of the engraved rolls

The setting up of the engraved rolls consists of imparting to them such a mutual position, at which the projections of cells of one roll will be accurately between the recesses of the other.

The rolls having been correctly setup produce the beeswax honeycomb bases, in which all three rhombs of the cells are of the equal thickness. In order to determine the correctness of the rolls setting up the beeswax honeycomb base sheet has to be examined against light in such a position, in which it comes out of the rolls. At that position the inscriptions embossed at every turn of the rolls can be read normally, which is to be considered as an evidence of the correct orientation of the beeswax honeycomb base sheet.

In connection with the fact that the lower roll cannot be adjusted, the setting up of the rolls is carried out by displacing the upper roll, therefore, the causes of setting up troubles and the methods their elimination will be considered in conformity with the changing of rhombs thickness of the cell formed by the upper roll.

Below stated are the kinds of the rolls getting out of order and the methods of their elimination.

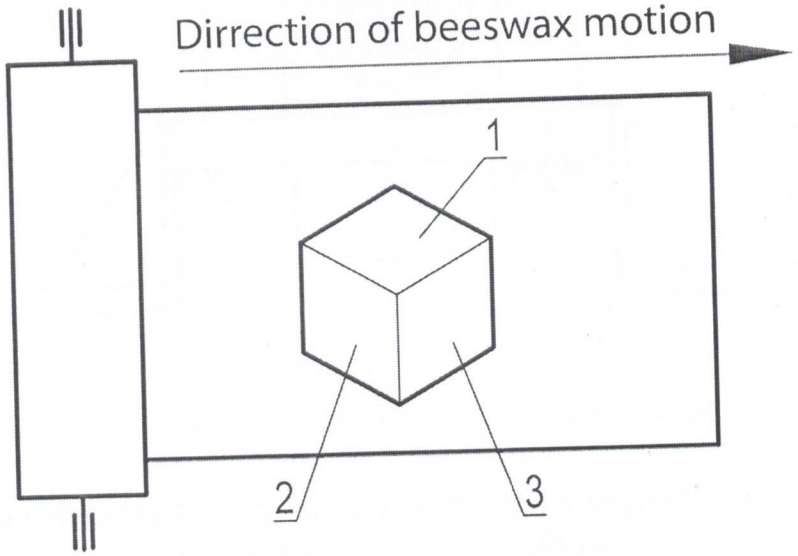

Fig. 2. Beeswax base sheet cell formed by the upper roll.

The rhombs are conditionally designated by the figures 1, 2, 3 (Fig. 2).

All parts, by means of which upper roll is adjusted relatively to the lower roll are shown in Fig. 3.

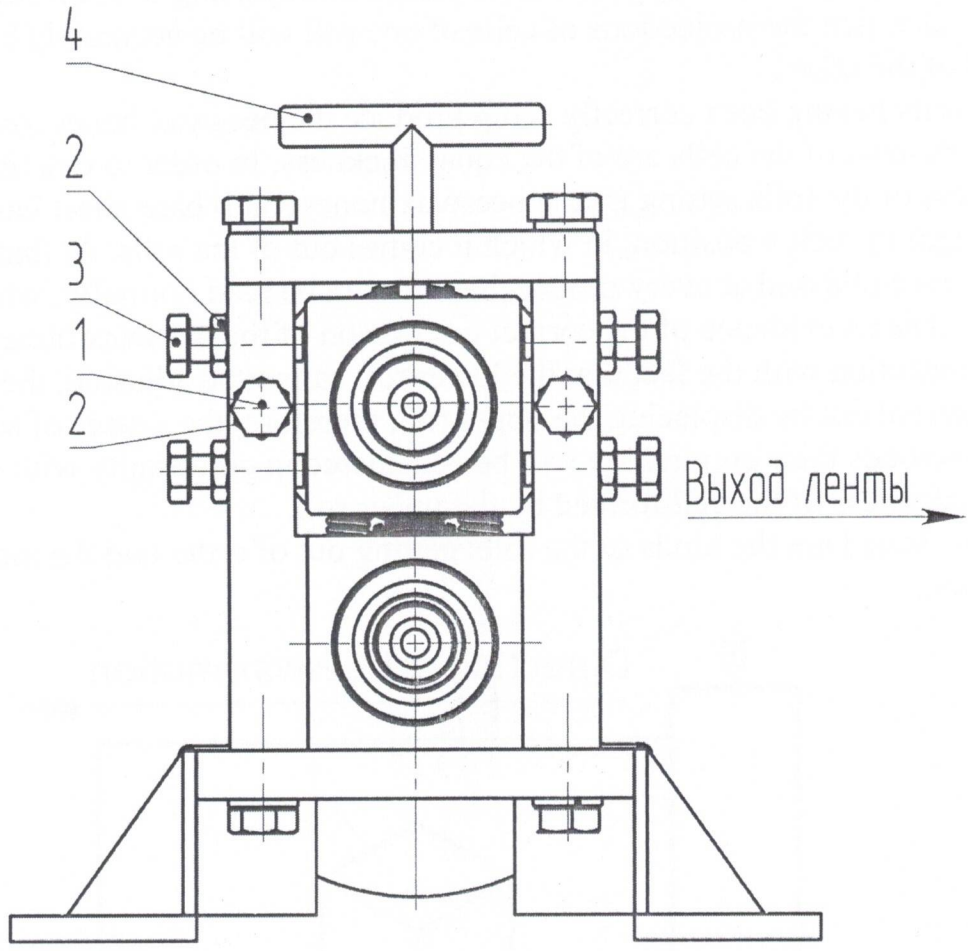

Fig. 3.
1-screw, longitudinal; 2-nut; 3-screw, adjusting, lateral; 4-screw, pressing.

4.1. Displacement of the upper roll with respect to the lower one along the axis.

That is the cause of changing the thickness of the first cell rhomb as compared with the rest of two. The setting up of the rolls is carried out by the axial displacement of the upper roll by means of the longitudinal screws 1 installed in but ends of the rolls stand (Fig. 3).

Preliminarily slacken the four nuts 2 of those screws and retighten them after finishing the adjustment. In case of thickening of the cell first rhomb (Fig. 4), displace the upper roll towards the rear stand, and in the case of its thinning (Fig. 5) towards the front stand.

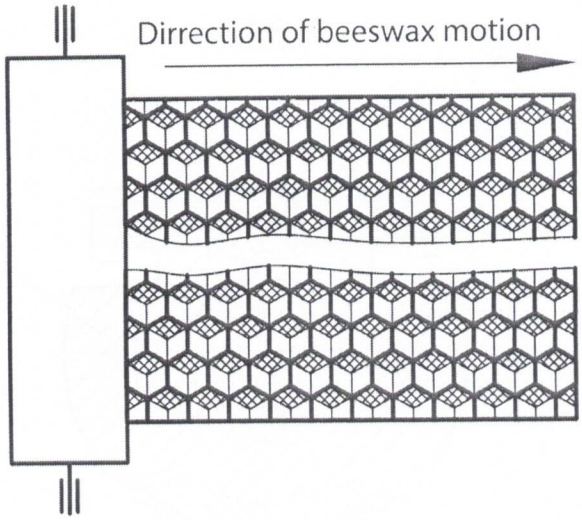

Fig.4

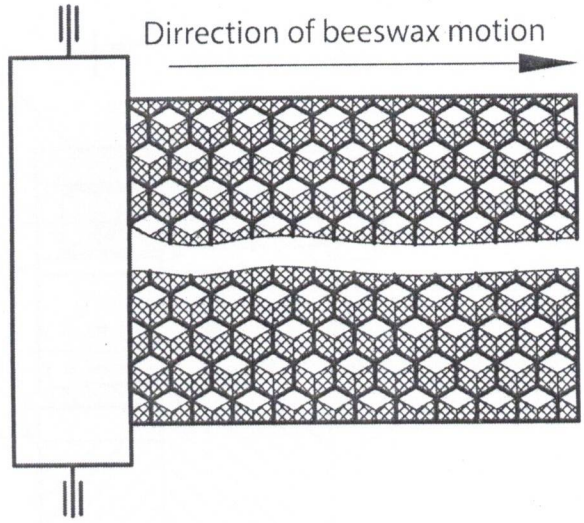

Fig.5

4.2. Turning the upper roll with respect to the lower one.

This causes the thickness of the second or third rhomb of the cell to be changed over the whole of the width of the sheet.

The rolls are set up by turning the upper roll around its axis by means of adjusting screws 6 installed in the carrier 4 (Fig. 8).

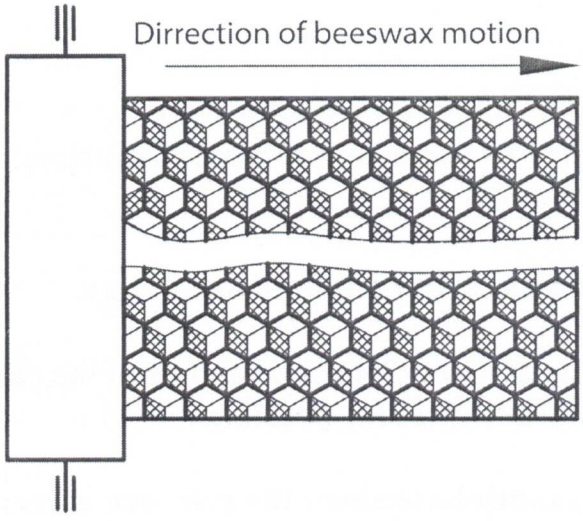

Fig.6

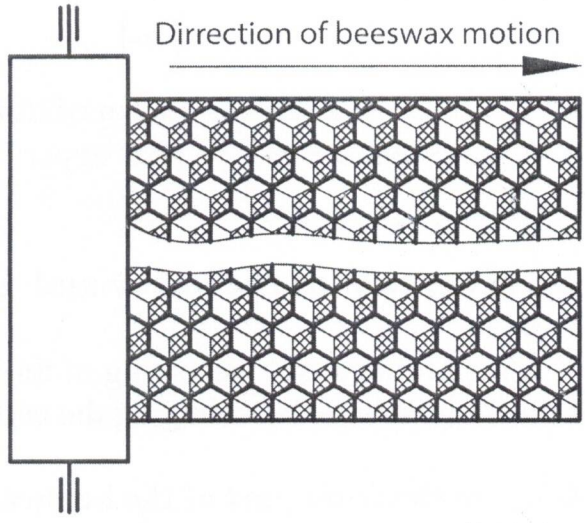

Fig.7

At the beginning, release the nuts 1 of the clamping studs 7, and when the setting-up operation is finished, retighten them. In case of the cell second rhomb becoming thicker (Fig. 6), screw off the left hand adjusting screw and screw up the right-hand screw; in case of the third rhomb becoming thicker (Fig 7), screw off the right-hand screw and screw up the left-hand screw.

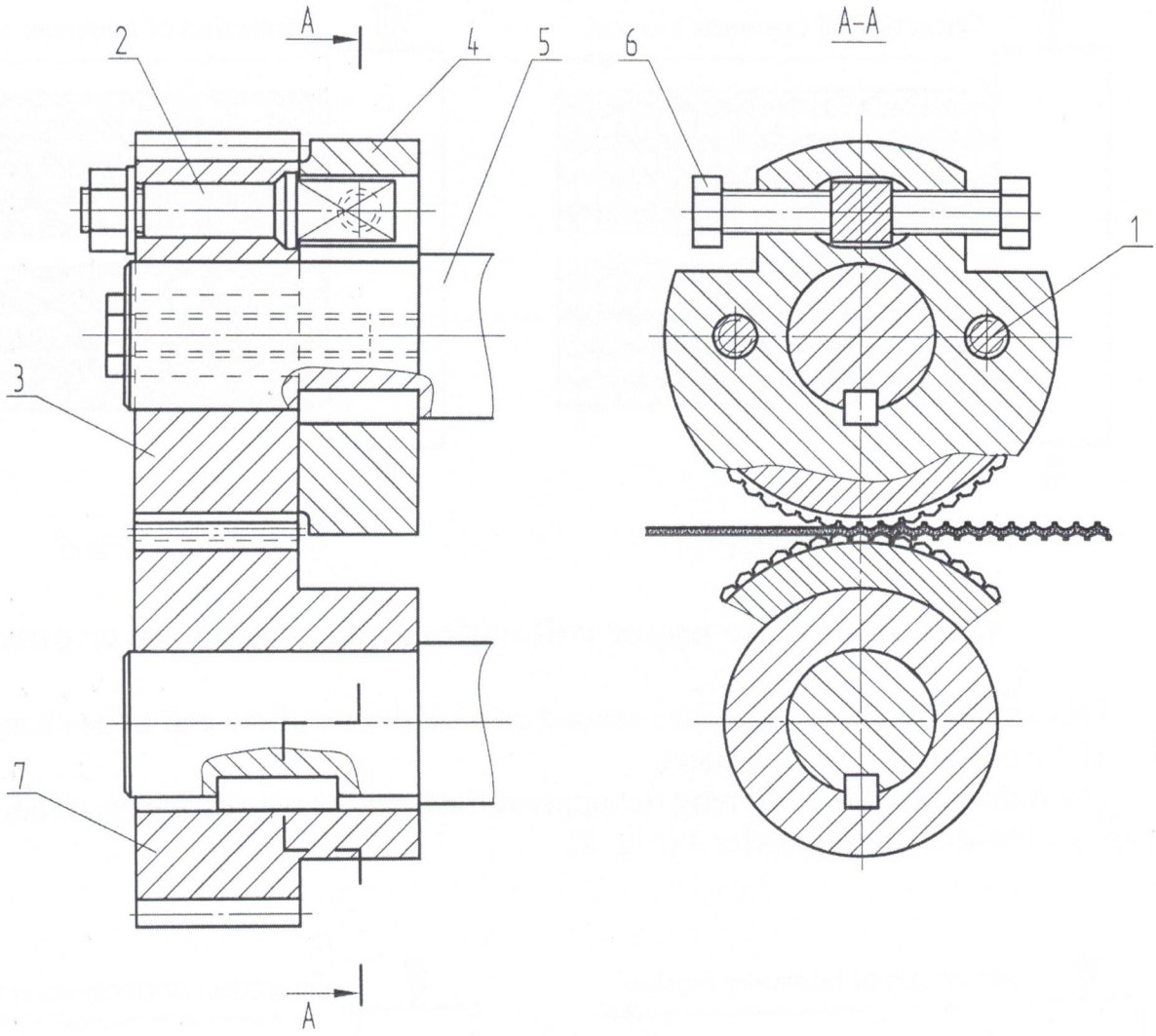

Fig. 8. Diagram of turning of the upper roll around its axis
1 - nut; 2 - pin; 3 - gear upper; 4 - carrier; 5 - upper roll; 6 - screw adjusting; 7 - bottom roller

4.3. Axes cant of the lower and upper rolls in the horizontal plane.

Axes cant causes harrowing of thickness of the second or third rhombs of the cell. The following versions of changing the cells rhombs thickness are possible.

4.3.1. **In the front part of the beeswax honeycomb base sheet the cells are correct, but in the rear part, the second or third rhombs of the cell are thickened (Figs 9 and 10).**

The setting up is carried out by displacement of rear end of the upper roll in the horizontal plane, by means of lateral adjusting screws 3 (Fig. 3).

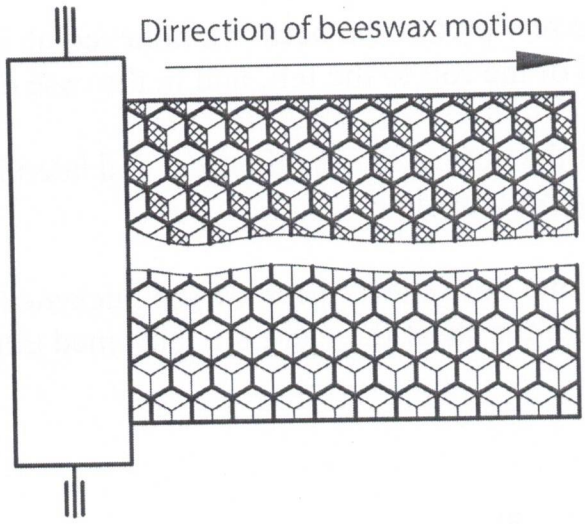

Fig. 9

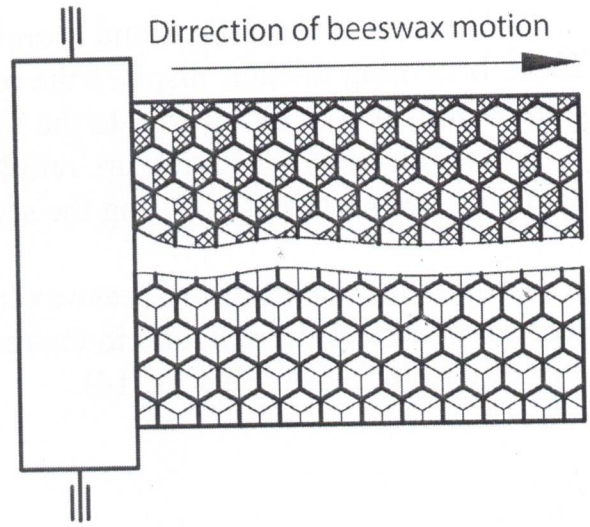

Fig.10

Preliminary, one has to release all the four nuts of those screws, and, after adjusting, to retighten them.

In the case of the cell second rhomb becoming thicker, displace the rear end of the roll to the left, and, in case of the cell third rhomb becoming thicker, to the right.

4.3.2. In the rear part of the beeswax honeycomb base sheet the cells are correct, and in the front part, the second or third rhombs of the sell are thicker (Figs 11 and 12).

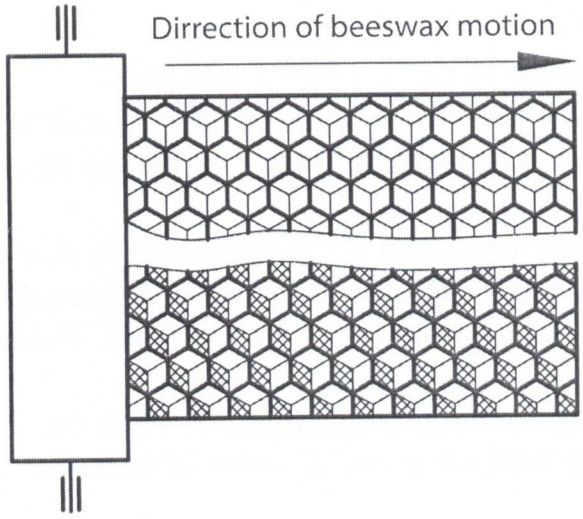

Fig.11

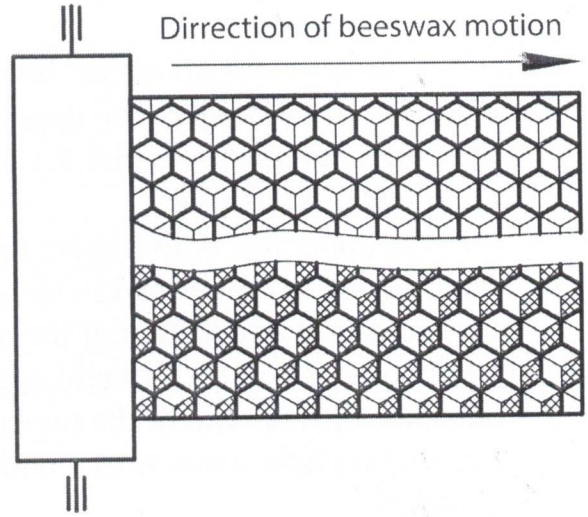

Fig.12

The setting up is carried out in two operations in the following sequence:

– turn the upper roll with respect to the lower one until the rhombs of the sells on the front part of the sheet are of equal thickness.

In case of the cell second rhomb becoming thicker, turn the upper roll clockwise and in the case of the third rhomb becoming thicker-counter clockwise; using the lateral adjusting screws displace the upper shaft end in the horizontal plane (point 7.3.1) until the rhombs of the cell 1 of the rear part of the beeswax honeycomb base sheet are identical.

In the case of the cell second rhomb in the rear part of the beeswax honeycomb base sheet, becoming thicker, displace the rear end of the roll to the left, and in the case of the third rhomb becoming thicker, to the right.

After finishing the setting up, retighten all the nuts of the longitudinal and lateral adjusting screws released during the setting up process time.

4.3.3. In the front part of the beeswax honeycomb base sheet, there are the thickened second rhombs of the sell, and in the rear part of the sheet there are the thickened third rhombs or otherwise (Figs 13, 14).

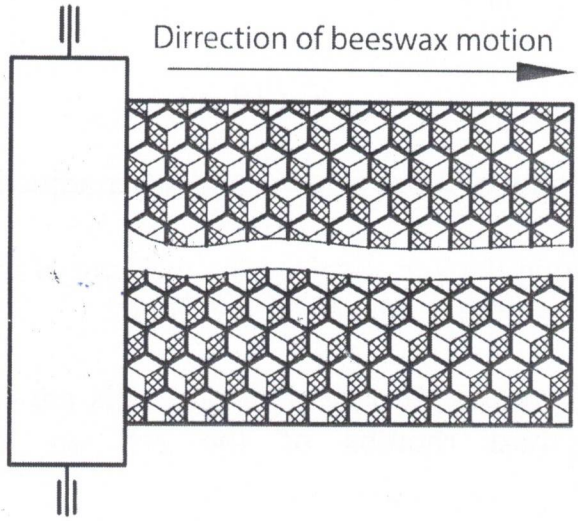

Fig.13

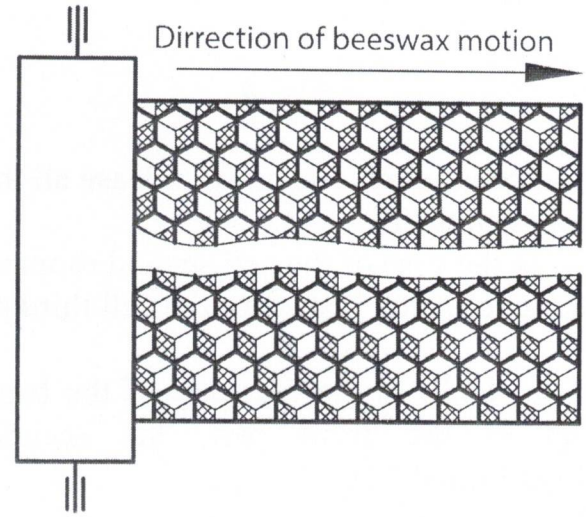

Fig.14

The setting up is carried out as three operations in the following sequence:

- displace the rear end of the upper roll by means of the lateral adjusting screws 1 in the horizontal plane (item 4.3.1.) until the cells rhombs in the rear part of the sheet are of equal thickness;
- turn the upper roll with respect to the lower one (item 4.2.) until the cells rhombs in the front part of the beeswax honeycomb base sheet are of the equal thickness.

For this case the adjustment of the rear part of the rolls becomes disturbed. The cells rhombs thicknesses will be different again.

- Displace the rear end of the upper rolls by the lateral adjusting screws in the horizontal plane (item 4.3.1.) until the equal thickness of rhombs of the cells is obtained.

After finishing the setting up, retighten all the nuts of the longitudinal and lateral adjusting screws released during the setting up process time.

4.4. The adjustment of the beeswax honeycomb base sheet thickness is carried out by the pressing screws 4 (Fig 3).

4.5. General Rules for setting up the Rolls

4.5.1. In the cases when the setting up of the rolls is carried out as two or three operations, one cannot set up the rolls in one step, as this can cause removing of the cells.

4.5.2. In all the cases when performing adjustment of the rolls, the upper roll has to be raised having release the upper pressing screws for this case.

4.5.3. In order to avoid the surface of the rolls being crushed, it is recommended to carry out adjustment of the rolls in two steps-using thickened and normal beeswax honeycomb base sheets.

4.5.4. At the project of gear wheel of one roll and on the cavity of the gear wheel of the second roll there are marks that must always coinside.

5. Delivery

5.1 Engraved Rolls	-1pcs.
5.2 Certificate	-1pcs.

6. Acceptance

Engraved Rolls the technical specifications ТУ У -29.3-35617181-002-2008 and as fit for use. Subject to preservation and packaging.

Output date 26.02.2021

7. Warranty

The company guarantees the serviceability Engraved Rolls for 12 months.
Home warranty period begins from the day of sale. Responsible for problems caused by the buyer, the organization of the manufacturer is not responsible

Address of the manufacturer:
Ltd. "ABB-100"
6-A, 23 Serpnya street, Dergachy, Kharkiv region, 62303 Ukraine
mailto: aiv_rudi@ukr.net
http://www.avv-100.com.ua