J. MAYOR.

APPARATUS FOR MAKING TUBES.

APPLICATION FILED JULY 14, 1911.

1,036,874. Patented Aug. 27, 1912.

Fig.1

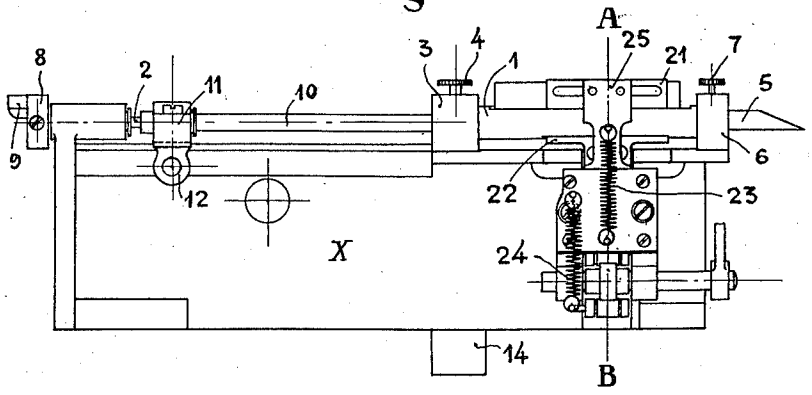


Fig.2

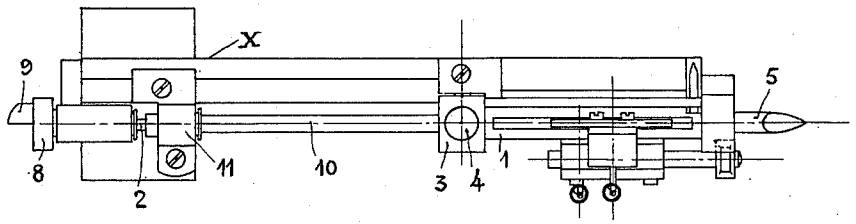


Fig.3

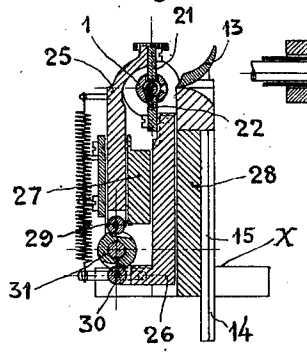


Fig.4

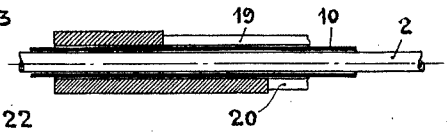


Fig.5

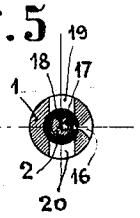


Fig.6

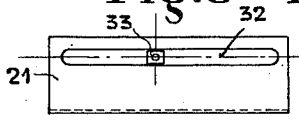
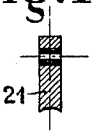


Fig.7



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MAKING TUBES.

1,036,874. Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed July 14, 1911. Serial No. 638,472.

To all whom it may concern:

Be it known that I, JOHANN MAYOR, a subject of the Czar of Russia, residing at St. Petersburg, Russia, have invented certain new and useful Improvements in Apparatus for Making Tubes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has for its object a device for the correct rolling of pasteboard tubes in machines for making cigarette cartridges (paper-shells) and pasteboard tubes to be inserted therein.

In some machines of this kind, described for instance in the Russian Letters Patent No. 9,684, the pasteboard tube is rolled within the fixed tube or sleeve 1 upon the rolling rod or mandrel 2. In this instance the pasteboard ribbon, in the beginning of the rolling, does not fill the whole space between 1 and 2, and does not lie very closely, as the pasteboard is not very pliable, and the ribbon is rolled often not quite evenly and the form of the tube does not become quite cylindrical. The present invention seeks to prevent this defect, so that the pasteboard tube may be rolled in a correct and exact manner.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claim.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views:—Figure 1 is a front view of the improved device; Fig. 2 is a top view of the same; Fig. 3 is a transverse section through the line A B of the Fig. 1; Figs. 4 and 5 represent respectively a longitudinal and a transverse section of the tube, in which the rolling of the pasteboard tube is performed; and Figs. 6 and 7 illustrate in side elevation and transverse section a separate detail of the device.

The fixed tube 1, in which the rolling of the pasteboard tube is performed, is secured in the usual way to the ring 3 by means of the screw 4, and the ring 3 is mounted on the machine frame or support. The end-piece 5 forms a prolongation of the tube 1, and is fastened to the ring 6 by means of the screw 7. Within the tube 1 the rolling rod 2 is disposed with an empty space intervening between the same and the fixed tube 1. The rolling rod 2 is provided with a clutch section (8 and 9) adapted to be coupled at proper moments with another clutch section (not shown in the drawings) for imparting rotation to said rod 2. In the empty space between the rolling rod 2 and the tube 1 the ramming tube or ejector 10 is arranged, and which is integral with the slide block 11. In its outer left-hand position the tube 10 leaves free the whole intermediate space between 1 and 2 or the length from the ring 3 to the ring 6, while in its outer right hand position the same tube is so disposed, that its edge comes to be in the same plane as the end of the cigarette cartridge, wherein the pasteboard tube is to be inserted. A periodical reciprocating movement is imparted to the ramming tube 10 by means of a lever-gear connected with the ring 12 of the slide block 11.

In order to secure the correct inserting of the pasteboard strip in the rolling device and to tension said strip there is provided a movable bar 13 that is lifted during the rolling by means of a mechanism not shown in the drawing. Said bar is provided with slide bars 14 movable in the guideways 15.

When entering the recess 16 the edge of the pasteboard ribbon is inserted in the slit 17 of the rolling rod 2, the said slit just coinciding at this moment with the recess 16. To secure an effective engaging of the pasteboard ribbon, the slit 17 passes into the cylindrical boring 18.

During the engaging of the pasteboard ribbon by the slit 17 and during the whole operation of rolling the pasteboard tube, the ramming tube 10 keeps its left hand position, leaving the intermediate space between 1 and 2 free for the pasteboard tube.

According to the present invention, from the moment the pasteboard ribbon is engaged by the slit 17 and during the whole period of its rolling, holding cheeks 21, and 22 are passing from above and from below through the suitable openings, 19 and 20, of the tube 1, the said cheeks being pressed to the rolling rod 2 by means of the springs 23, 24. The cheeks are secured to the slippers 25, 26 and are movable in the upright direction in the suitable guide-ways 27, 28. The slippers 25, 26 are provided with two

diametrically opposite rollers 29, 30, while the cam disk 31 is disposed between the said rollers. This cam disk may be periodically rotated, moving asunder the cheeks 21, 22 during the inserting of the rolled pasteboard tube in the cigarette cartridge by means of the ramming tube 10 and during the return stroke of the latter. The pasteboard tube remains therefore all the time under the pressure of the cheeks 21, 22 and the rolling is effected in an even and exact manner. The upper cheek 21 may be made adjustable by means of the groove 32 and the adjustable square piece 33, as shown separately in Figs. 6 and 7.

The arrangement mentioned above is only an example like form of carrying out the present invention, the essential feature of the latter consisting in the use of the cheeks 21, 22, pressing the pasteboard ribbon to the mandrel during the whole operation of rolling it.

It is obvious that those skilled in the art may vary the details of construction and arrangement of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claim.

What I claim is:—

In an apparatus for forming tubes, the combination of a suitable support; a sleeve fixedly mounted on said support; a mandrel mounted to rotate within said sleeve and providing therewith a cylindrical chamber, said mandrel provided with a slot to engage with the edge of the tube strip; said sleeve provided with a slot to receive said strip, and having oppositely located openings; devices associated with said mandrel to press the forming tube, said devices comprising each a cheek piece movable within the sleeve opening, members on which said cheek pieces are mounted, a guide for each of said members, and a cam roller operable to actuate said members to move the cheek pieces from operative position; a strip tensioning and guiding device associated with said sleeve; and an ejector sleeve mounted to reciprocate within said cylindrical chamber, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHANN MAYOR.

Witnesses:

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M. S. Snisarenn.