E. O. LUNDIN.

CORRUGATING MACHINE.

APPLICATION FILED APR. 3, 1920.

1,365,258. Patented Jan. 11, 1921.

Fig. 1.

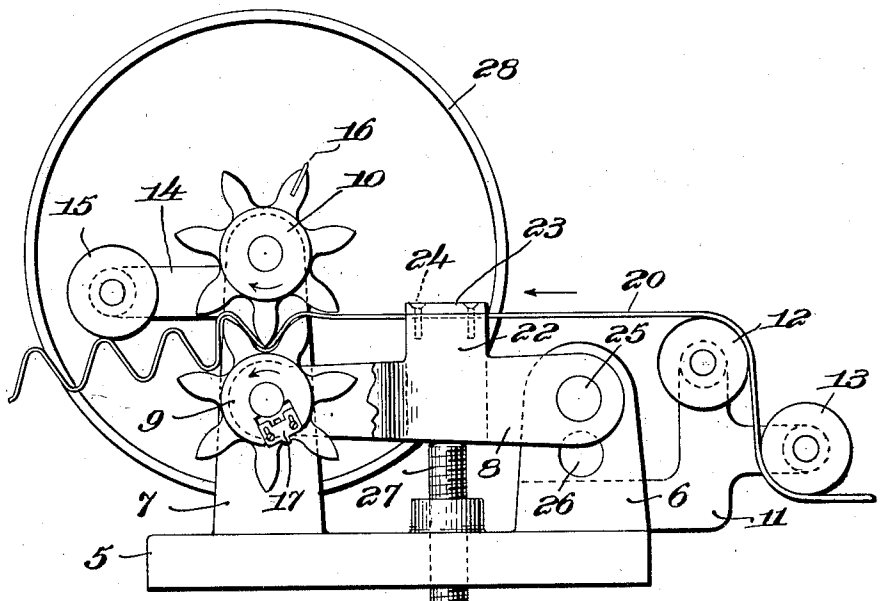


Fig. 2.

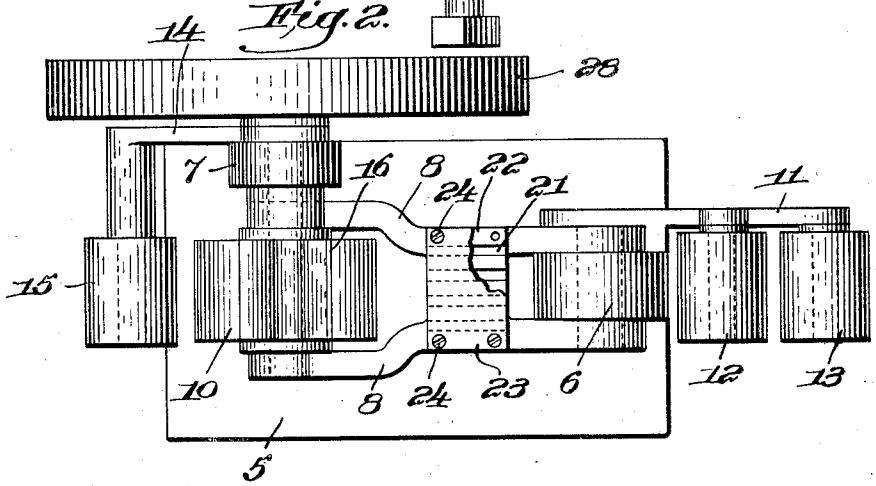


Fig. 3.

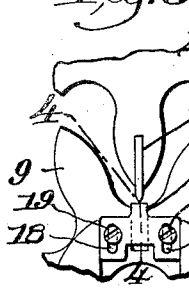
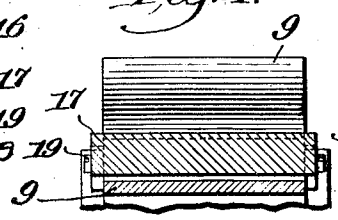


Fig. 4.



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his Attys.

UNITED STATES PATENT OFFICE.

EMIL O. LUNDIN, OF NEWTON CENTER, MASSACHUSETTS, ASSIGNOR TO STANDARD CRAYON MANUFACTURING COMPANY, OF DANVERS, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CORRUGATING-MACHINE.

1,365,258. Specification of Letters Patent. Patented Jan. 11, 1921.

Application filed April 3, 1920. Serial No. 370,991.

To all whom it may concern:

Be it known that I, EMIL O. LUNDIN, a citizen of the United States, and resident of Newton Center, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Corrugating-Machines, of which the following is a specification.

This invention relates to improvements in machines for currugating metal strips or similar material and for delivering the strips of corrugated material in predetermined lengths.

It is particularly adapted for forming the separator strips for use in the improved box for crayons or the like, described and claimed in my application, Serial No. 270,990, filed on even date herewith.

It is an object of my invention to provide a simple, compact and efficient machine for forming strips of metal or the like, each strip having a uniform number of corrugations and being of uniform length. It is an object to provide a machine which will corrugate a plurality of strips at one time; which will perform the corrugating and cutting into lengths at a single operation, and which is adjustable so as to operate upon material of differing characteristics.

Other and further objects will appear as the description proceeds.

I have illustrated a preferred embodiment of my invention in the accompanying drawings in which,—

Figure 1 is a side elevation of my machine, partly broken away;

Fig. 2 is a plan view, also partly broken away;

Fig. 3 is a fragmentary detail view showing the method of adjusting the cutting anvil; and

Fig. 4 is a cross section on line 4—4 of Fig. 3.

The particular embodiment of the invention chosen for the purpose of illustration comprises in general a base 5, a lower roll standard 6, an upper roll standard 7, a lower roll arm 8, a lower roll 9, an upper roll 10, a receiving idler roll arm 11, receiving idler rolls 12 and 13, a delivery idler roller arm 14, a delivery idler roller 15, and a driving pulley 28.

The cutting knife 16 is carried by the upper roll 10, fitting into the apex of one of the teeth. The base of the interfitting groove of the roller 9 carries the anvil 17 which is adjusted by means of the slotted openings 18 and the set screws 19, best seen in Figs. 3 and 4.

The ribbon 20, which is to be corrugated is fed through the grooves 21, in the upwardly extending portion 22 of the arm 8. These grooves are preferably closed by the cap 23 which is held in place by the screws 24.

The relation between the two rolls may be varied by placing the shaft 25 in the lower opening 26 in the standard 6 instead of in the upper opening in which it is shown in Fig. 1. A fine adjustment of the relative position of the two rollers is made by means of the screw 27 which is threaded through the base 5.

In the operation of my machine, the ribbon or strip 20 is led from a spool held in any usual form of holder (not shown) and passes under the roller 13, over the roller 12, through one of the grooves 21 and thence between the rolls 9 and 10. The idler rollers 12 and 13 are not essential but have been found highly desirable in order to insure an even delivery of the ribbon under uniform tension.

The corrugated strips pass out under idler roller 15 which has been found desirable in order to counteract the tendency of the corrugated material to curl around the upper roll 10. This roller insures delivery at a uniform point and also by preventing the curling above referred to, causes the strips to be straight in general outline. A similar idler roller may be placed beneath the strip if desired.

It has been found that in the case of ribbons of slightly varying characteristics, it is necessary to vary the relation of the two rolls in order to deliver a uniform product. This can be taken care of by the screw 27. Since, in order to operate, the knife 16 and anvil 17 must exactly contact, any adjustment of the screw 27 will necessitate a corresponding adjustment of the anvil 17 by means of the screws 19.

If the machine is used to corrugate but one or two ribbons at a time, when the knife 16 has become dulled opposite certain slots 21, other slots may be used.

While I have shown my machine as hav-

ing rolls with but seven teeth, it is obvious that rollers with various numbers of teeth may be used, and also that teeth of various contours may be used for forming various forms of corrugations. One machine may be used at various times with different forms and sizes of rolls, the difference in the necessary distance from center to center of the rolls being taken care of by the adjustments made possible by the plurality of openings in the standard 6 and by the screw 27.

I claim:

1. A machine of the character described comprising a pair of toothed corrugating rolls, a tooth on one said roll carrying a cutter, and the intermeshing groove on the other roller carrying an anvil.

2. A machine of the character described comprising a pair of toothed corrugating rolls, a tooth on one said roll carrying a cutter, the intermeshing groove on the other roller carrying an anvil, and means for adjusting the relation between the cutter and anvil.

3. A machine of the character described comprising a base, a fixed standard carrying a corrugating roll, a second fixed standard and an arm adapted to be attached thereto at one of a plurality of points, a second corrugating roll carried by said arm in juxtaposition to the first corrugating roll, and means for adjusting the angular relation between the arm and its standard and thereby varying the relation between the two rolls.

4. A machine of the character described comprising a base, a fixed standard carrying a corrugating roll, a second fixed standard and an arm adapted to be attached thereto at any one of a plurality of points, a second corrugating roll carried by said arm in juxtaposition to the first corrugating roll, guide means carried by said arm adapted to guide to the rolls the material to be corrugated, and an idler roller supported by said first fixed standard adapted to guide the material away from the rolls.

5. A machine of the character described comprising a base, a fixed standard carrying a corrugating roll, a second fixed standard and an arm adapted to be attached thereto at one of a plurality of points, a second corrugating roll carried by said arm in juxtaposition to the first corrugating roll and idler rolls supported by said second standard and adapted to tension the material to be corrugated.

6. A machine of the character described comprising a base, a fixed standard carrying a corrugating roll, a second fixed standard and an arm adapted to be attached thereto at any one of a plurality of points, a second corrugating roll carried by said arm in juxtaposition to the first corrugating roll, idler rolls supported by said second standard adapted to tension the material to be corrugated, guide means carried by said arm adapted to guide to the rolls the material to be corrugated, and an idler roller supported by said first fixed standard adapted to guide the material away from the rolls.

Signed by me at Boston, Massachusetts, this first day of April, 1920.

EMIL O. LUNDIN.