No. 725,863. PATENTED APR. 21, 1903.

E. A. McMILLIN.

BOX BLANK CUTTING AND CREASING ROLL.

APPLICATION FILED NOV. 3, 1900.

NO MODEL.

Fig. 1.

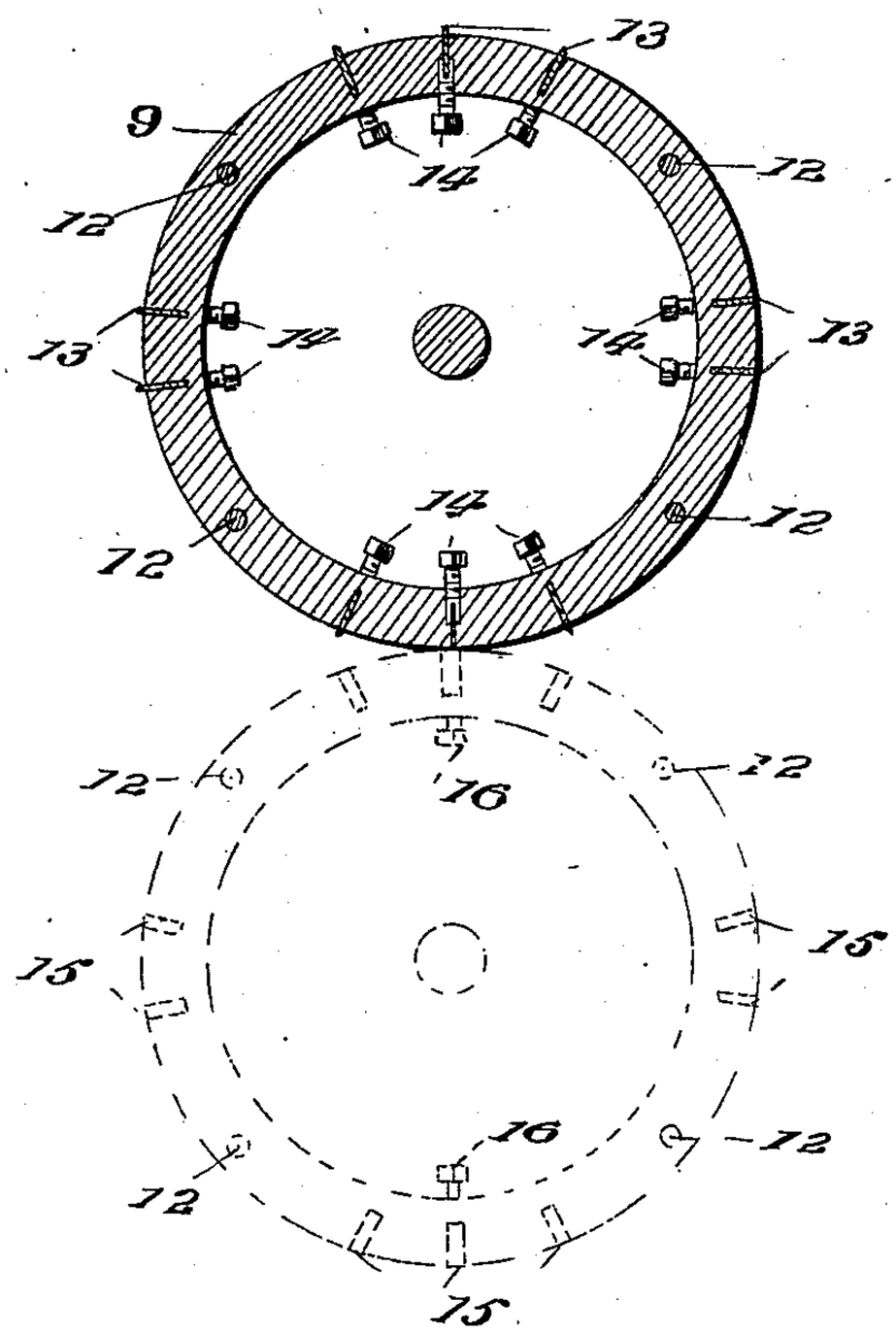
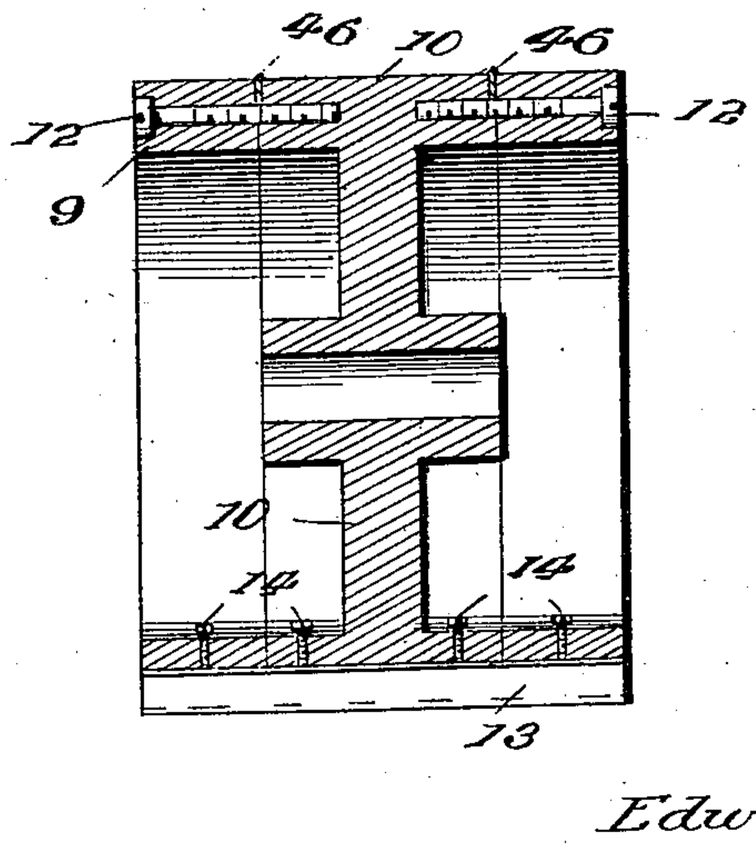


Fig. 2.



Inventor

Witnesses

C. M. Catlin.

H. B. Briel.

By Edward A. McMillin

Mosher & Curtis.

Attorneys

UNITED STATES PATENT OFFICE.

EDWARD A. McMILLIN, OF NORTH ADAMS, MASSACHUSETTS.

BOX-BLANK CUTTING AND CREASING ROLL.

SPECIFICATION forming part of Letters Patent No. 725,863, dated April 21, 1903.

Application filed November 3, 1900. Serial No. 35,357. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. McMILLIN, a citizen of the United States, residing at North Adams, county of Berkshire, and State of Massachusetts, have invented certain new and useful Improvements in Box-Blank Cutting and Creasing Rolls, of which the following is a specification.

The invention relates to such improvements; and it consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings and the reference characters marked thereon, which form a part of this specification.

Similar characters refer to similar parts in the several figures.

Figure 1 is a vertical transverse section of cutting and creasing rolls, one being indicated by broken lines. Fig. 2 is a sectional view of one of the cutting and creasing rolls on a plane passing axially through the roll.

The object of my invention is to provide a machine adapted to cut from a roll of paper pieces or blanks and cut and crease the same for use in the manufacture of paper boxes therefrom, and I have shown in the drawings rolls adapted to cut and crease blanks suitable for use in the manufacture of paper boxes like that shown and described in United States Letters Patent No. 639,269, dated December 19, 1899, granted to me for improvements in paper boxes.

Numerals 2 and 3 denote rolls which coöperate to feed the paper from a supply-roll (not shown) to cut off sections or blanks of paper each of a size adapted to form a paper box and to cut and crease each blank cut off so that the same can be folded up by hand or by machinery in the subsequent operation of making the box.

In the manufacture of paper boxes like that described in my said Patent No. 639,269 it is necessary that the blank of oblong rectangular form should have certain portions cut therefrom and should be provided with numerous creases or lines of indentation on one or other of its surfaces forming guides for bending the paper in the formation of the box therefrom. For the purpose of forming such lines of severance and indentation the rolls 2 3 are provided with a plurality of cutting and creasing blades arranged at suitable angles, and I have shown in the drawings a novel construction of roll adapted to provide means for suitably supporting and adjusting such blades. Each of the rolls 2 and 3 is of a hollow cylindrical form, being preferably built up of three cylindrical sections 9, 10, and 11, as shown in Fig. 1, the sections 9 and 11 being respectively cylindrical rings which are secured to the opposite ends of the central hub-section 10, as by the screws or bolts 12, inserted through the ring-sections, respectively, into the rim of the hub-section. The periphery of the hollow cylindrical roll thus formed is provided with various grooves adapted to receive the respective cutting and creasing blades, which grooves are preferably of a width adapted to tightly fit the respective blades, the blades being driven into the respective grooves with considerable force, so as to be tightly held therein by frictional engagement of the sides of the blade with the walls of the groove. As a means for accurately supporting and adjusting the blades so inserted I provide for each blade a plurality of screw-bolts severally inserted through screw-threaded apertures formed in the inner cylindrical surface of the hollow roll and adapted to engage and support the inner edge of the blade. Two or more of such bolts may be used in connection with each blade. Blades have heretofore been secured by bolts requiring bolt-holes extending entirely through solid walls, and other modes of securing blades in rolls are also known. My improvement is characterized by the fact that the blade-securing screws are combined with a hollow roll or cylindrical shell in such manner that the comparatively short screws or screw-openings required extend only through a wall of the shell, whereby the screws are accessible within the shell for adjustment. In the drawings the manner in which the blades 13 are thus inserted in the periphery of the roll and adjustably supported by the screw-bolts 14 is clearly illustrated. Either or both of the rolls may thus be provided with cutting or creasing blades, as the nature of the work demands. In Fig. 1 I have shown the lower roll 3 provided with steel plates 15, inserted in like manner in peripheral grooves in po-

sition to coöperate with the respective blades in the paper-roll to prevent wear upon the roll-surface. The plates so inserted may be adjusted by means of screws 16 in the same manner as the knives are adjusted in the upper roll.

By employing a hollow cylindrical roll I am able to provide the same with a large number of cutting and creasing blades inserted as described, and locate such blades diametrically opposite each other, as well as in other positions, without in any way interfering with their separate accurate adjustment. By means of the adjusting-screws 14 either end of the blade can be adjusted relatively to the other, and when the blade extends from one to another of the sections of the roll occupying alined grooves in the respective sections, as shown in Fig. 2, by providing such screw-supports in each of the roll-sections any inequalities in the depths of the grooves in the respective sections can be easily compensated for by adjusting such screws, insuring a perfect support for the blade. By making the cutting and creasing rolls of a plurality of peripheral sections bolted together I am able to insert the longitudinal cutting and creasing blades 46 between said sections and firmly clamp said blades in place by bolting the roll-sections together, as shown in Fig. 5.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the class described, the combination with a roll having a hollow cylindrical shell, provided in its periphery with a blade-receiving groove; of a blade located in said groove; and a plurality of screw-supports inserted in screw-threaded apertures in the interior surface of the cylindrical shell and accessible for adjustment within the same, and adapted to engage and support the inner edge of said groove-contained blade, substantially as described.

2. In a machine of the class described, the combination with a roll comprising a plurality of hollow cylindrical shell members secured together and provided with peripheral grooves in a plurality of said members arranged in line with each other; of a blade located in said grooves and extending from one to another of said members, and a plurality of screw-supports inserted in screw-threaded apertures in the shell, said screw-supports being accessible for adjustment within the rolls and adapted to engage and support the inner edge of said blade, substantially as described.

In testimony whereof I have hereunto set my hand this 11th day of October, 1900.

EDWARD A. McMILLIN.

Witnesses:
FRANK C. CURTIS,
E. M. O'REILLY.