

No. 758,672.

PATENTED MAY 3, 1904.

L. A. MAYALL.
MACHINE FOR CREASING CARDBOARD.

APPLICATION FILED AUG. 26, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig: 1.

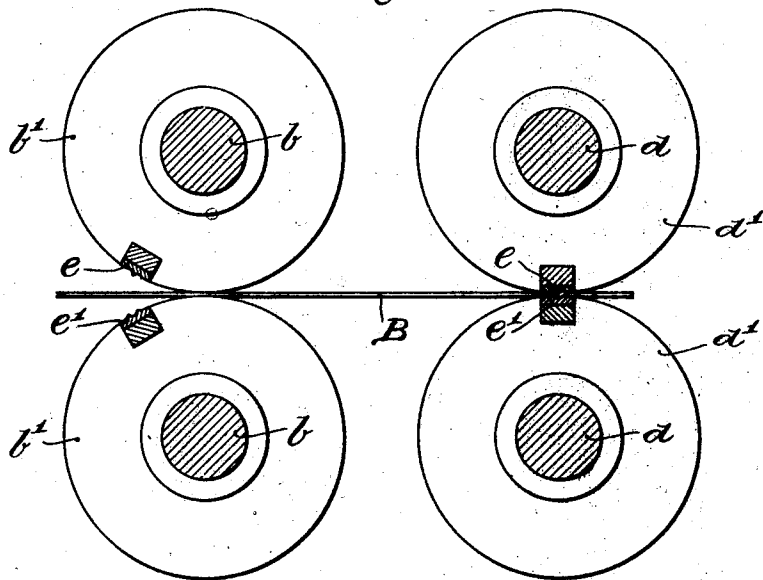
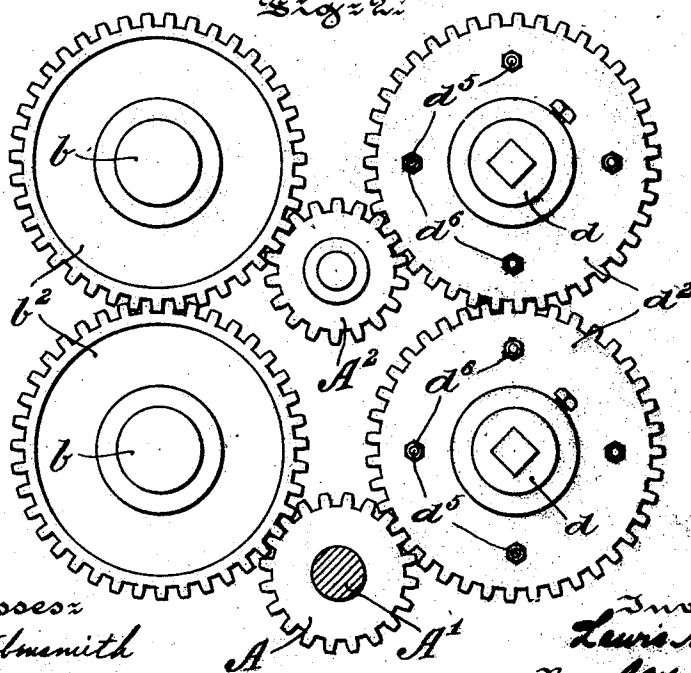


Fig: 2.



Witnesses:
Jas. C. Wolmanith
Wilhelm Vogt

Inventor:
Lauris A. Mayall,
By J. Walter Doughty
Attorney.

No. 758,672.

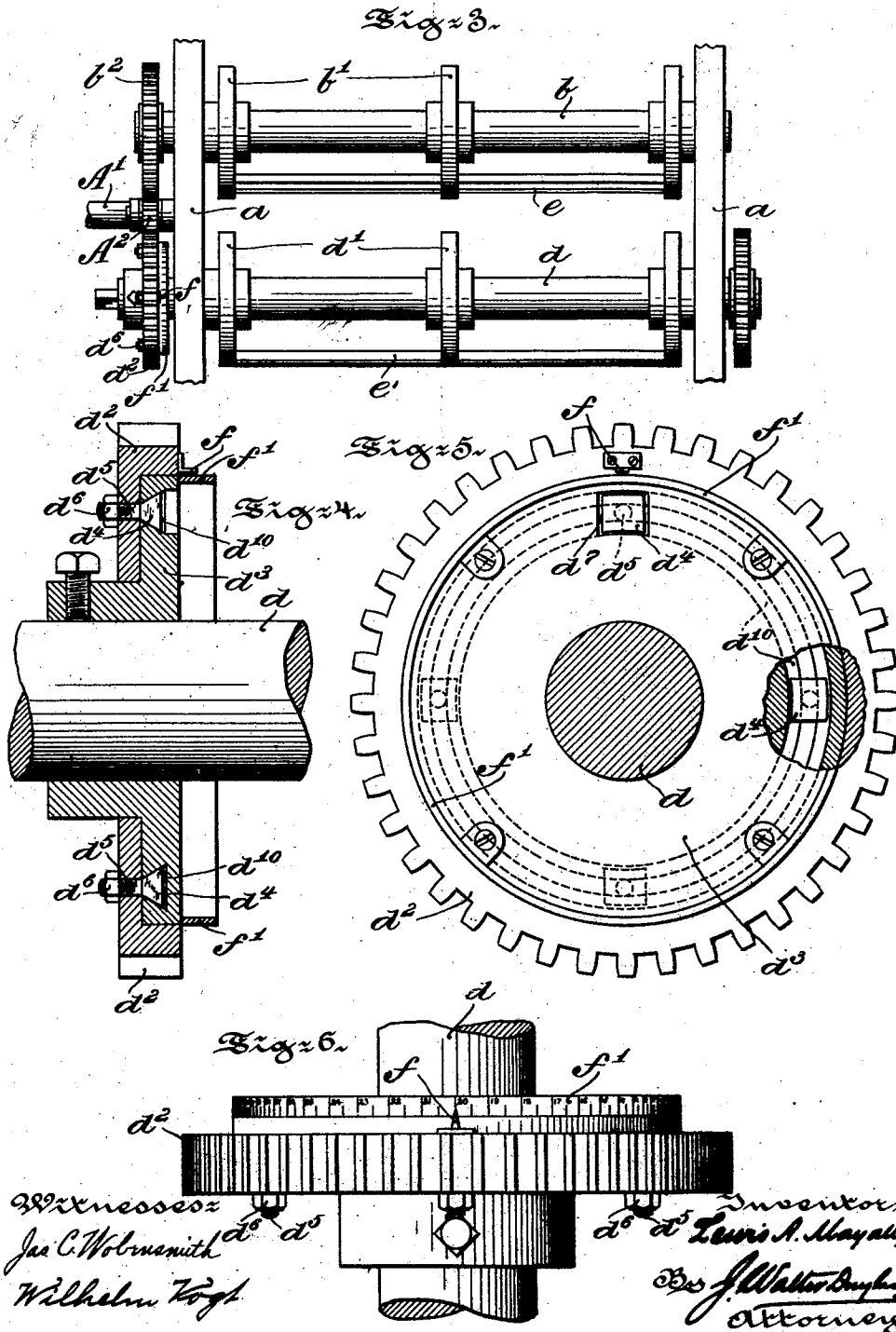
PATENTED MAY 3, 1904.

L. A. MAYALL.
MACHINE FOR CREASING CARDBOARD.

APPLICATION FILED AUG. 28, 1903.

NO MODEL.

3 SHEETS—SHEET 2.



BEST AVAILABLE COPY

No. 758,672.

PATENTED MAY 3, 1904.

L. A. MAYALL.
MACHINE FOR CREASING CARDBOARD.

APPLICATION FILED AUG. 26, 1903.

NO MODEL.

3 SHEETS—SHEET 3.

Fig: 7.

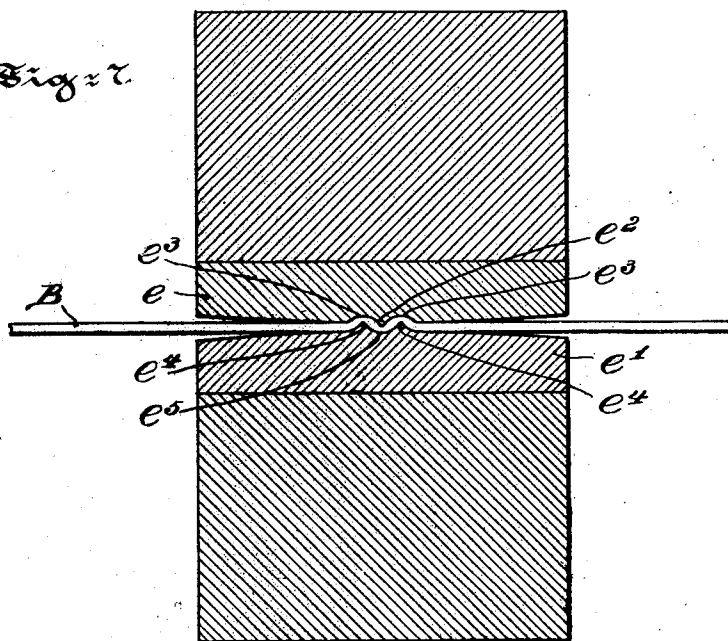
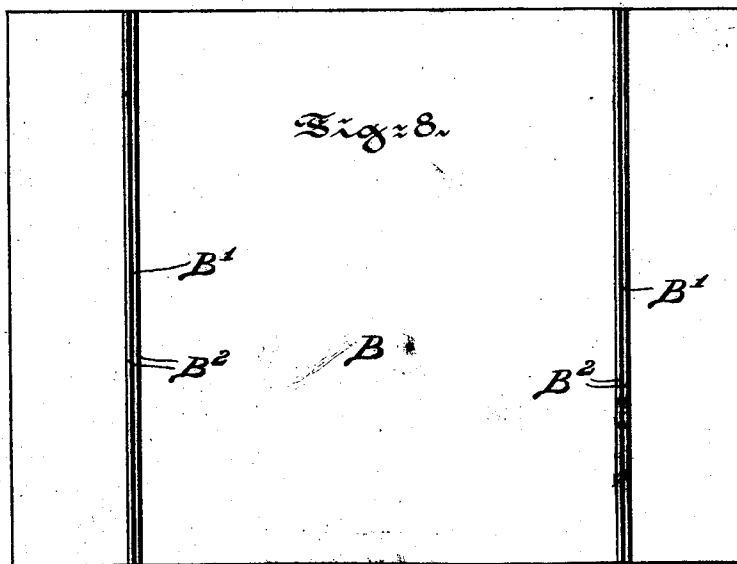


Fig: 8.



Witnesses:
Jas. C. Hobbsmith.
Wilhelm Vogt

Inventor:
Lewis A. Mayall,
By J. Walter Douglas
Attorney

UNITED STATES PATENT OFFICE.

LEWIS A. MAYALL, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR CREASING CARDBOARD.

SPECIFICATION forming part of Letters Patent No. 758,672, dated May 3, 1904.

Application filed August 26, 1903. Serial No. 170,786. (No model.)

To all whom it may concern:

Be it known that I, LEWIS A. MAYALL, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Creasing Cardboard or the Like, of which the following is a specification.

My invention has relation to a machine for creasing heavy cardboard, thick paper, pasteboard, or the like; and in such connection it relates to the construction and arrangement of such a machine.

In a previous patent, No. 659,246, granted to me under date of October 9, 1900, there is illustrated and described a creasing-machine wherein the material to be creased is passed between two shafts upon each of which is arranged segmental rolls carrying the creasing-dies. These segmental rolls were adjustable not only longitudinally along the shafts but circumferentially thereon to secure variations in the distances both longitudinally and transversely between adjacent creases.

The subject-matter of the present application embodies improvements upon creasing-machines of the general type described in the said Letters Patent No. 659,246, in which the material to be creased is passed between two pairs of forming-rolls, each pair carrying a set of creasing-dies of peculiar construction and one pair of rolls being arranged so that the shafts in which the rolls are secured may be turned without moving the meshing gears driving these shafts so as to secure the necessary variation in distance between the successive creases formed by the two pairs of forming-rolls in a simple and easy manner.

The nature and scope of my invention will be more fully understood from the following description, taken in conjunction with the accompanying drawings, forming part hereof, in which—

Figure 1 is a vertical sectional view of two pairs of forming-rolls embodying main features of my invention. Fig. 2 is an end elevational view of the meshing gears for properly driving both pairs of forming-rolls. Fig. 3 is a top or plan view of Fig. 2, but upon a reduced scale. Fig. 4 is a cross-sectional

view enlarged, illustrating the construction and arrangement of one of the shafts, the gear for driving the shaft, and the means for turning the shaft independent of the gear. Fig. 5 is an end elevational view of Fig. 4, partly sectioned and broken away. Fig. 6 is a top or plan view of Fig. 4. Fig. 7 is a vertical sectional view, greatly enlarged, of the improved creasing-dies; and Fig. 8 is a top or plan view of a blank after being creased by the forming-rolls.

Referring to the drawings, *a a* represent the side frames of the machine, in which two pairs of shafts *b b* and *d d* have their bearings. The first pair of shafts *b b* carry fixed forming-rolls *b'*, located in operative position with respect to each other and having in their peripheries the respective complementary forming-dies *e* and *e'*. Upon one end of each shaft *b* is rigidly secured a gear-wheel *b²*, meshing with each other, as illustrated in Fig. 2. One gear-wheel *b²* meshes with a pinion *A* upon the main driving-shaft *A'*, while the other gear-wheel *b²* meshes with an idler-pinion *A²* to transfer its motion thereto. Upon the end of each of the shafts *d* is adjustably secured the gears *d²*, which mesh, respectively, with the idler *A²* and with the pinion *A*, as clearly illustrated in Fig. 2. The adjustable connection between each of the gears *d²* and the respective shafts *d* forms part of the present invention. In the simplest and therefore the preferred form of such connection (illustrated in detail in Figs. 4, 5, and 6) there is rigidly secured to each shaft *d* a disk *d³*, which is annularly grooved, as at *d⁴*, on one face adjacent to its circumference. By preference this groove *d⁴* is triangular in cross-section to receive a correspondingly-shaped head *d⁵* upon a bolt *d⁶*. A bolt *d⁶* is thus adapted to slide in the annular groove *d⁴* when the nut *d⁷* of said bolt *d⁶* is loosened, as hereinafter more fully explained. In the preferred form of construction four of these bolts *d⁶* are carried by a gear *d²* and are arranged in pairs diametrically opposite to each other. The nuts *d⁷* of the bolts *d⁶* serve, when advanced on the bolts *d⁶*, to clamp the face of the gear *d²* tightly to the adjacent face of the disk *d³* to lock said gear *d²* to the disk *d³*, and hence

to the shaft d . When the nuts d^6 are loosened, the shaft d , with the disk d^3 and forming-rolls d' , may be turned without turning the gear d , the disk d^3 sliding upon the triangular heads d^1 of the bolts d^5 , and hence the position of the dies e and e' , carried radially by each of the rolls d' , may be advanced away from the dies of the rolls b' or turned toward the dies of the said rolls b' , as occasion requires, to secure a variation in distance between a crease formed by the rolls b' and a crease formed by the rolls d' . To separate the gear d^2 from the disk d^3 , upon the inner face of the disk d^3 , is cut, as at d^7 , an opening sufficiently large to permit of the triangular head d^1 of a bolt d^5 passing therethrough. When, therefore, the nuts d^6 of the bolts d^5 are removed, each bolt d^5 may be withdrawn from the disk d^3 and gear d^2 by turning the disk d^3 until the opening d^7 comes successively opposite the triangular-shape head d^1 of each bolt d^5 , as clearly illustrated in Figs. 4 and 5 of the drawings. Upon the inner face of the gear d^2 is arranged adjacent to and above the periphery of the disk d^3 a pointer, f , and beneath the pointer f is arranged to turn when the disk d^3 is turned a collar f' , secured to the disk d^3 and projecting from its circumference. This collar f' has on its perimeter a graduated scale f^2 , serving, with the pointer f , to indicate in inches the distance between a crease formed by the rolls b' and a crease formed by the rolls d' during successive variations in position of the said rolls d' , as hereinbefore explained.

In conjunction with the forming-rolls b' and d' there is used a set of creasing-dies e and e' , of peculiar construction and arrangement, as illustrated in detail in Figs. 1 and 7. The die e has a central V-shape projection e^2 , arranged midway of two curved depressions e^3 . The other die, e' , has two V-shape projections e^4 , separated by a central curved depression e^5 . The projection e^2 is arranged opposite the depression e^5 and the projections e^4 are arranged opposite the depressions e^3 . In the creasing of the blank B, as illustrated in Figs. 1, 7,

and 8, there is formed on one side of the blank B a central line of depression B' between two curved upwardly-extending portions B², while on the opposite side of the blank B, directly beneath the depressed line B', is a curved downwardly-extending portion arranged between two depressed lines.

In pasteboard or cardboard of inferior quality and brittleness such a crease permits of the proper bending of the blank without fear of the tearing or breaking of the same.

Having thus described the nature and object of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described, a pair of creasing-rolls provided with dies fixed with respect to their operative position on said rolls and adapted to form a crease, a second pair of creasing-rolls provided with dies adjustable with respect to their operative position on said second pair of rolls to thereby vary the distance of the crease formed by the second pair of rolls from the crease formed by the first pair of rolls.

2. In a machine of the character described, two sets of creasing-rolls, each set being provided with dies, whereof one die is provided with a central projection arranged between two depressions, and whereof the other die is provided with a central depression arranged between two projections, one pair of coating dies being fixed with respect to their operative position on one of the sets of rolls, while the other pair of dies of the other set of rolls are adjustable with respect to their operative position to thereby vary the distance of the crease formed by one pair of rolls from the crease formed by the other pair of rolls.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

LEWIS A. MAYALL.

Witnesses:

J. WALTER DOUGLASS,
THOMAS M. SMITH.