Feb. 19, 1924. 1,484,066

B. HEINRICHS

MACHINE FOR MAKING LAMP WRAPPERS AND THE LIKE

Filed Feb. 3, 1922 5 Sheets-Sheet 1

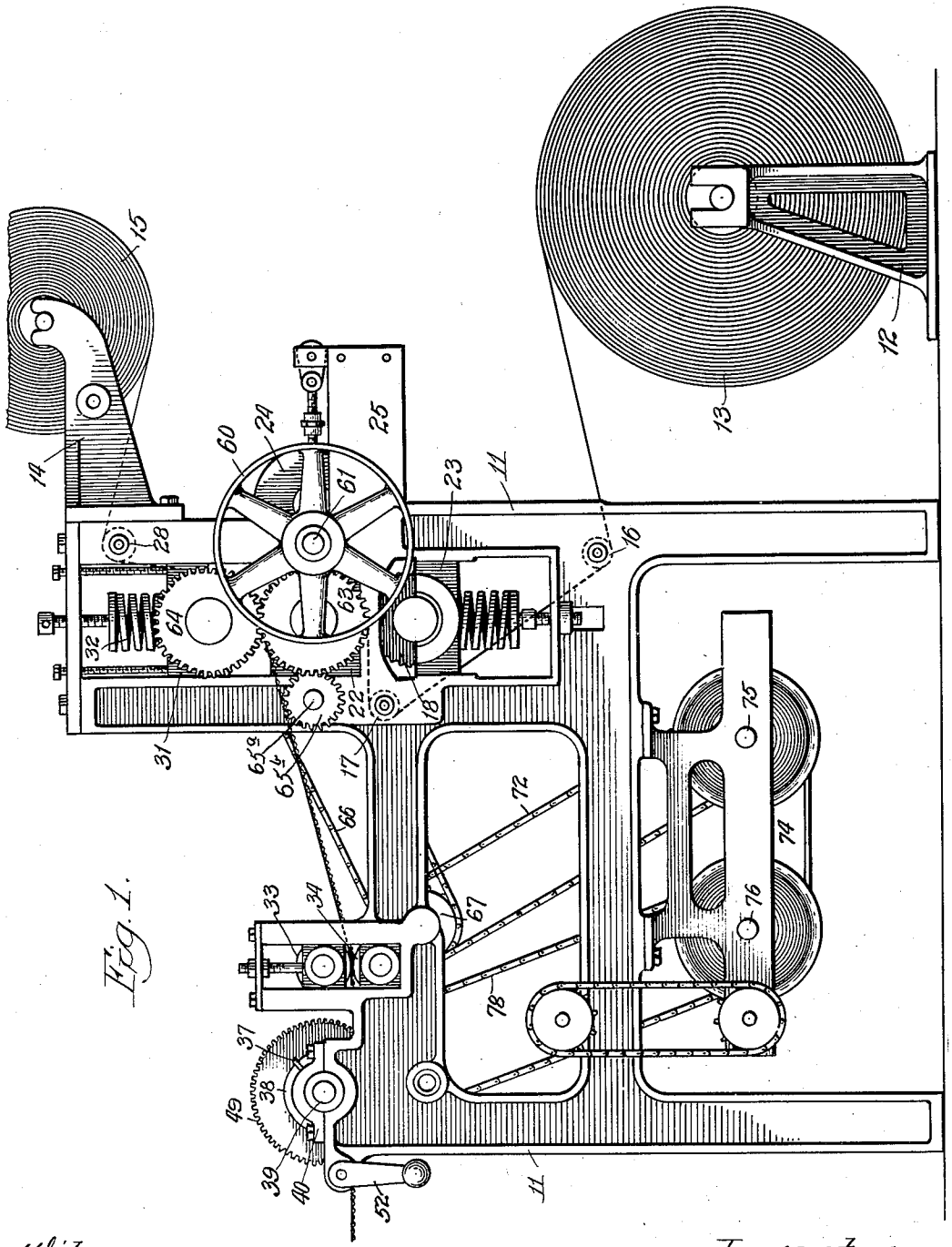


Fig. 1.

Witness:
John Enders

Inventor:
Burg Heinrichs
by Fred Gerlach
his Atty.

Feb. 19, 1924. 1,484,066

B. HEINRICHS

MACHINE FOR MAKING LAMP WRAPPERS AND THE LIKE

Filed Feb. 3, 1922 5 Sheets-Sheet 2

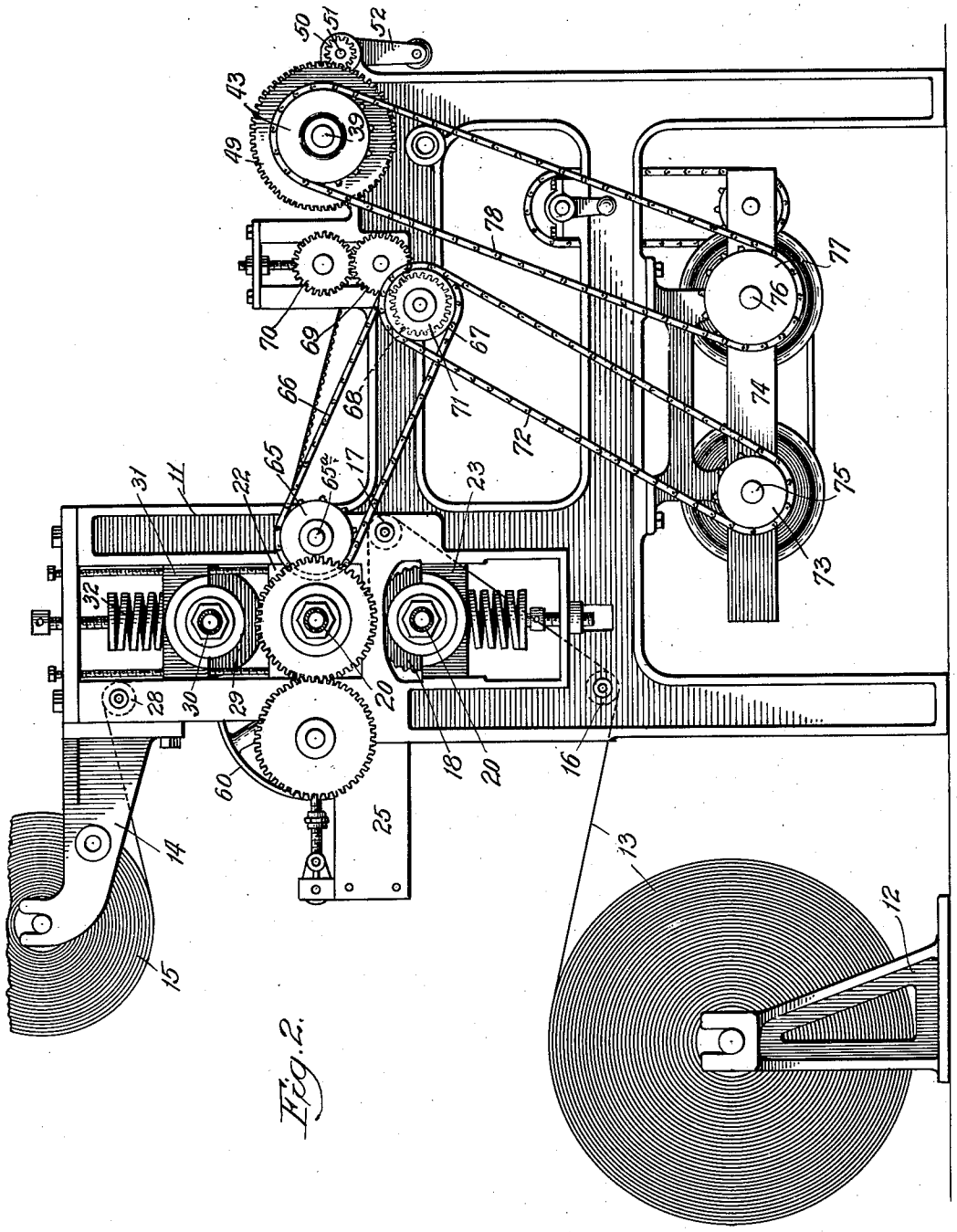


Fig. 2.

Witness:
John Enders

Inventor:
Berg Heinrichs
by Fred Gerlach
his Atty.

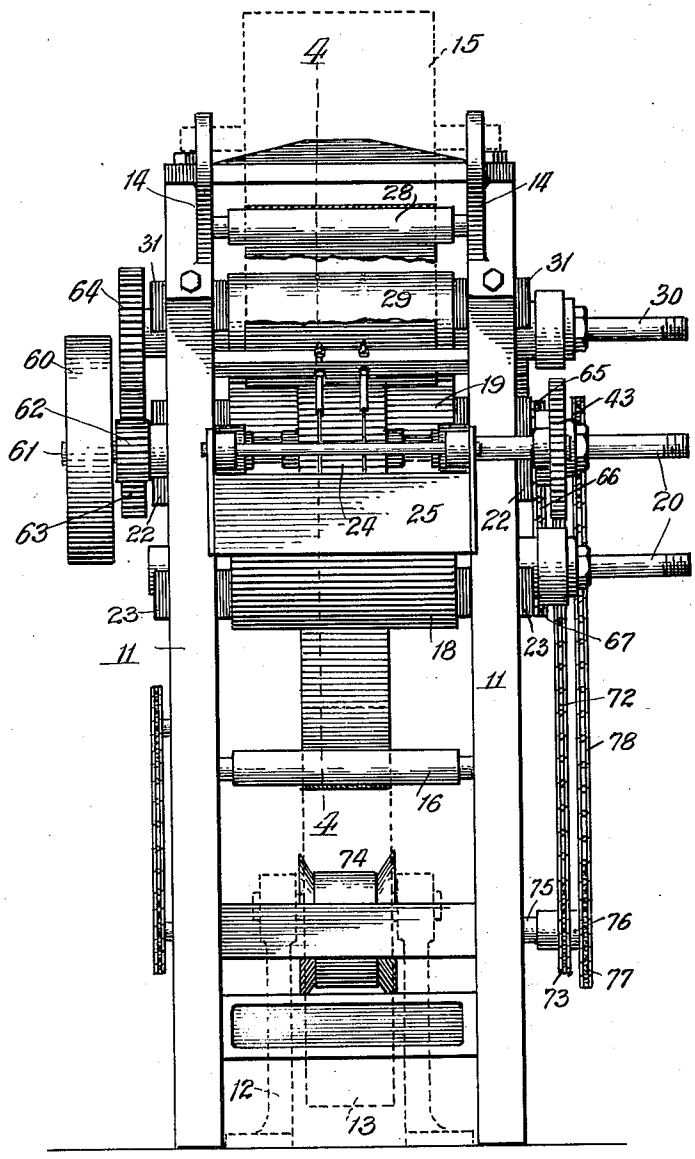
Feb. 19, 1924. 1,484,066

B. HEINRICHS

MACHINE FOR MAKING LAMP WRAPPERS AND THE LIKE

Filed Feb. 3, 1922 5 Sheets-Sheet 3

Fig. 3.



Witness:
John Enders

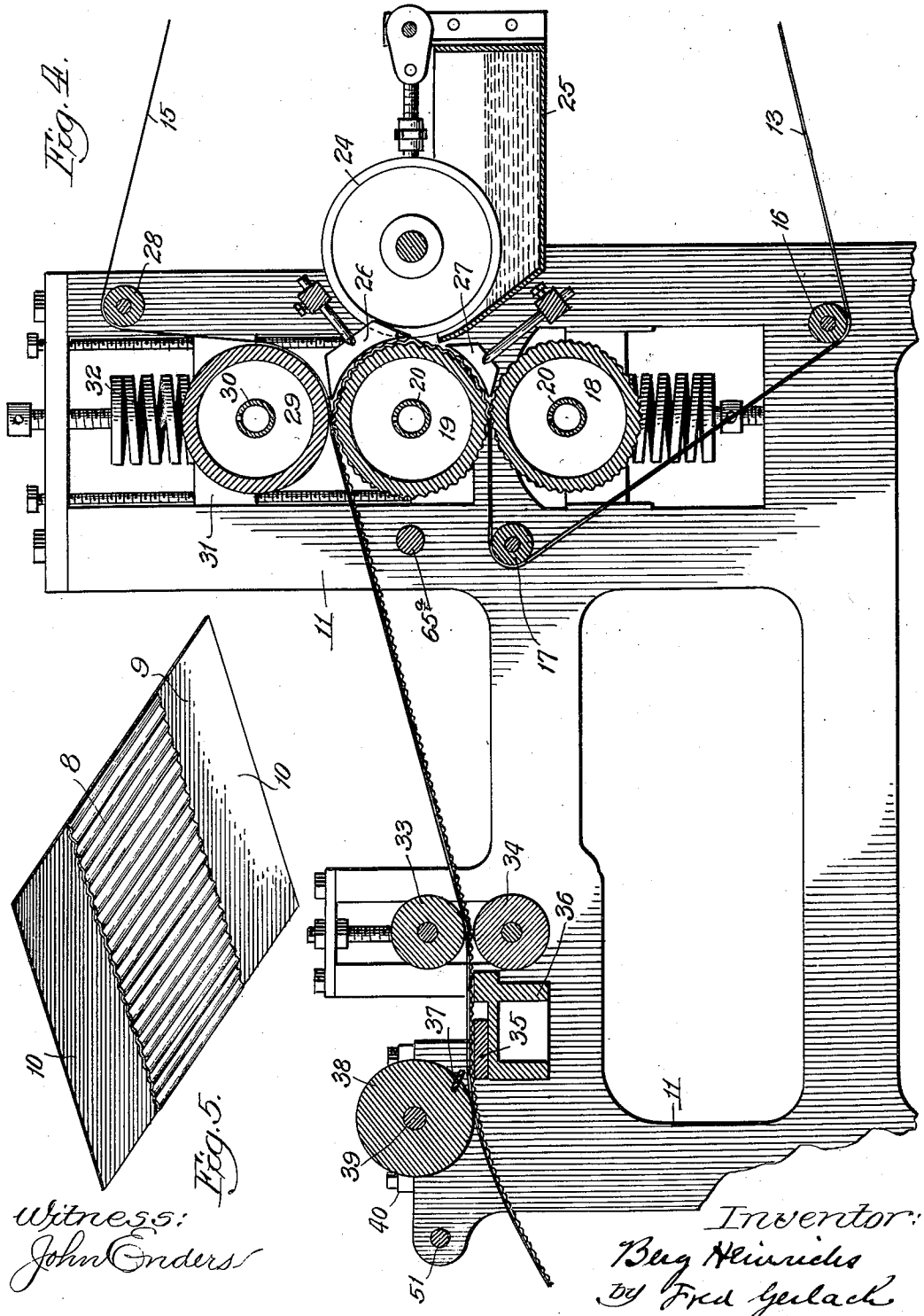
Inventor:
Berg Heinrichs
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his Atty.

Feb. 19, 1924. 1,484,066

B. HEINRICHS

MACHINE FOR MAKING LAMP WRAPPERS AND THE LIKE

Filed Feb. 3, 1922 5 Sheets-Sheet 4



Witness:
John Enders

Inventor:
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Feb. 19, 1924. 1,484,066

B. HEINRICHS

MACHINE FOR MAKING LAMP WRAPPERS AND THE LIKE

Filed Feb. 3. 1922 5 Sheets-Sheet 5

Fig. 6.

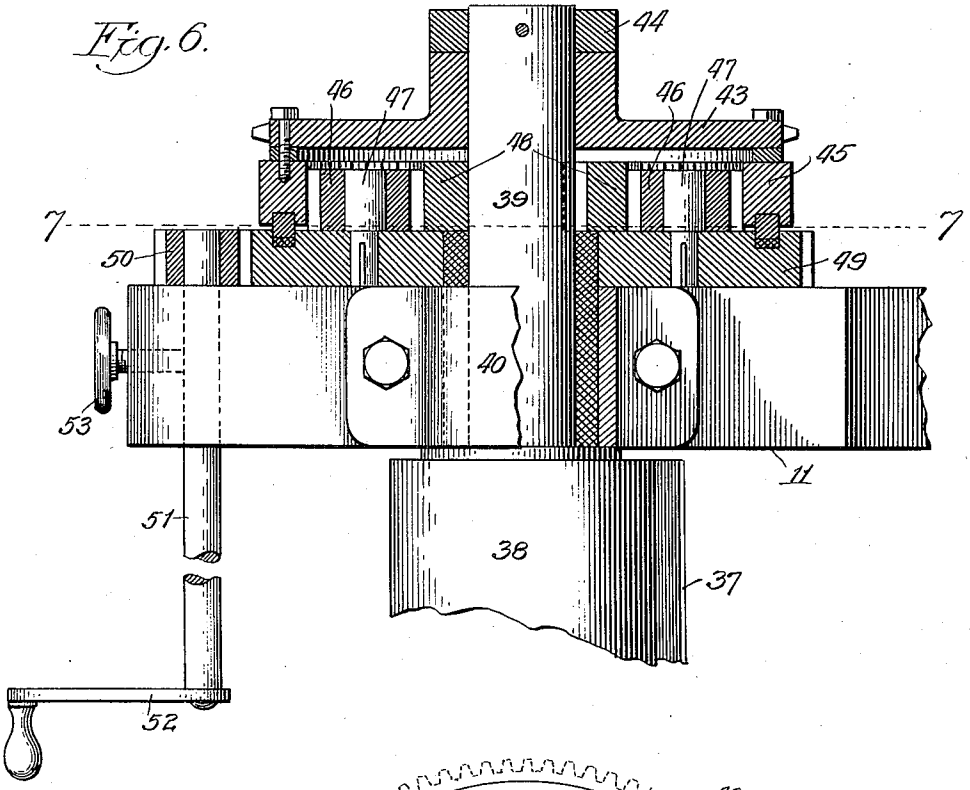
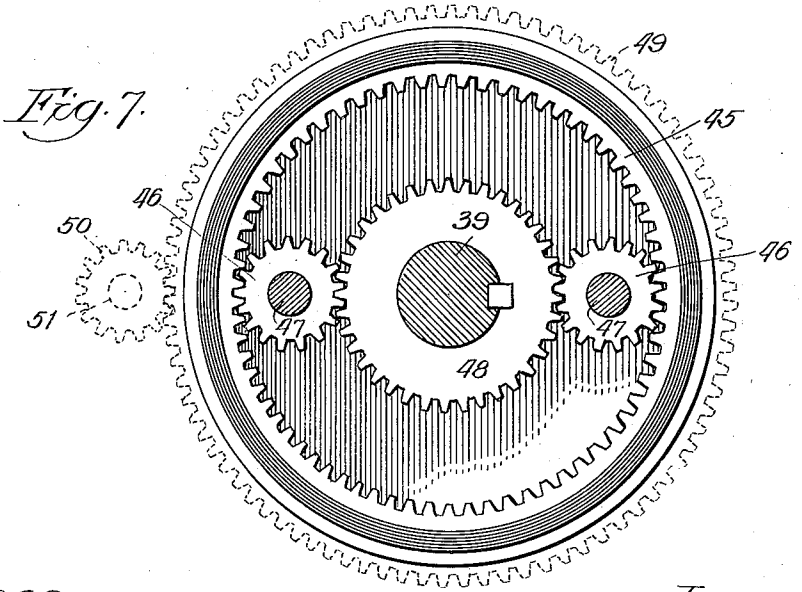


Fig. 7.



Witness:
John Enders

Inventor:
Berg Heinrichs
by Fred Gerlach
his Atty.

Patented Feb. 19, 1924. 1,484,066

UNITED STATES PATENT OFFICE.

BERG HEINRICHS, OF CHICAGO, ILLINOIS, ASSIGNOR TO MID-WEST BOX COMPANY, OF ANDERSON, INDIANA, A CORPORATION OF INDIANA.

MACHINE FOR MAKING LAMP WRAPPERS AND THE LIKE.

Application filed February 3, 1922. Serial No. 533,807.

To all whom it may concern:

Be it known that I, BERG HEINRICHS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Making Lamp Wrappers and the like, of which the following is a full, clear, and exact description.

The invention relates to machines for making lamp wrappers and the like.

One object of the invention is to provide a machine for forming lamp wrappers composed of a corrugated strip of straw board and a previously printed sheet of suitable paper projecting from the margins of the corrugated strip and adapted to be twisted and folded into the ends of the wrapper to hold the lamp therein. Another object of the invention is to provide improved means for cutting the finished web at the proper point so that the printed matter thereon will be correctly disposed on the wrapper.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Figs. 1 and 2 are views from opposite sides. Fig. 3 is an end elevation. Fig. 4 is a vertical longitudinal section. Fig. 5 is a perspective of the finished wrapper. Fig. 6 is a section of the adjusting mechanism for the cutter. Fig. 7 is a section taken on line 7—7 of Fig. 6.

The wrapper produced by the machine consists of a corrugated strip 8 adapted to extend around a lamp or other article and a fly sheet 9 secured to the crowns of the corrugations on one side of the strip 8 and forming marginal extensions 10 which are adapted to be twisted to hold the wrapper around the article and to be tucked in with the article if desired. In practice, the fly sheet 9 is usually printed to indicate the contents and for advertising purposes. The machine is adapted to form the wrappers from continuous webs of stock for the strips 8 and 9.

The several mechanisms of the machine are supported by a frame formed of sides 11 which are suitably cross-connected to form a rigid structure. Brackets 12 support a roll of straw board 13 for forming the strips 8 of the wrappers. Brackets 14 fixed to frame 11 support a roll of paper 15 adapted to form fly sheets 9 of the wrappers. The web 13 passes from its supply roll around guide-rollers 16 and 17 to a pair of rolls 18 and 19 which are provided with interfitting corrugated peripheries. Each of the rolls 18 and 19 is heated by steam supplied through pipes 20. Roll 19 is supported in bearings 22 held in the frame 11 and roll 18 is supported in bearings 23 which are slidably mounted in the frame and pressed towards the roll 19 to cause the roll 18 to apply pressure to the web 13 as it passes between the coacting corrugated rolls. A paste roll 24 is adapted to apply paste from a bath 25 to the crowns of the corrugations of the web 13 while it is on the roll 19. Adjustable guides 26 and 27 are provided to hold the corrugated web on the roll 19. The web 15 passes from its supply roll around a guide-roll 28 to a pressure roll 29 which is adapted to press the webs 15 and 13 together while they are passing between rolls 19 and 29. Roll 29 is heated by steam supplied through a pipe 30, is mounted in bearings 31 which are slidably held in frame 11 and is subjected to pressure of springs 32 to force the roll 29 towards the upper portion of the corrugated roll 19. As the webs 13 and 15 pass through rolls 19 and 29, they will be aligned. The combined web passes to a pair of feed rolls 33 and 34 which are adapted to force the web to a cutter comprising a stationary member 35 fixed to a cross-support 36 on the frame 11 and a member 37 which is mounted on a roll 38 so that it will be rotated. Roll 38 is fixed to a shaft 39 which is journalled in bearings 40 carried by frame 11.

The driving mechanism comprises a belt-pulley 60 on a shaft 61 which is mounted in the frame 11. A pinion 62 fixed to said shaft and meshing with a gear 63 on roll 18, drives the corrugating roll 19. A gear 64 on roll 29 meshes with gear 63 to drive said roll. A shaft 65^a is driven by a pinion 65^b which meshes with gear 63. A sprocket-wheel 65 on shaft 65^a drives a chain 66 which drives a sprocket 67 which drives a gear 68 which meshes with a gear 69 on feed-roll 34. A gear 70 on feed-roll 33 meshes with gear 69 so that both of said feed-rolls will be synchronously driven. A sprocket-wheel 71 is secured to rotate with sprocket 67, and the chain 72 drives a sprocket-wheel 73 from

sprocket 71. A variable driving mechanism 74 is driven by the sprocket 73. This mechanism may be such as is usually known as a "Reeves" variable speed transmission which comprises a shaft 75 driven by sprocket 73 and a shaft 76 driven by the variable speed belt, as well understood in the art. The driven shaft 76 has secured thereto a sprocket 77 which drives a chain 78 which passes around a sprocket 43 for driving the rotatable cutter 37. By adjustment of the variable speed mechanism 74, the speed or number of revolutions of the cutter 37 relatively to the feed of the web may be varied to form wrappers of different lengths. The glueing roll 24 is driven by a gear 24^a which meshes with a gear 24^b which rotates with the corrugating roll 19.

In the manufacture of these wrappers, it is desirable to have the printed matter correctly positioned on each wrapper, and for this purpose, mechanism is provided for timing the position of the cutter 37 so that it will cut the combined web on the proper lines. Since this adjustment is frequently necessary in the manufacture of these wrappers, it is also desirable to have adjusting means which can be operated with facility and without disconnecting the driving mechanism for the cutter or while the machine is in operation. For this purpose, the shaft 39 is driven through the sprocket 43 which is loose on one end of shaft 39, is held thereon by a collar 44 and is secured to an internally toothed ring-gear 45. The teeth of gear 45 mesh with idlers 46 which are loose on studs 47 and mesh with a gear 48 which is keyed to the shaft 39. The studs 47 on the idlers 46 are mounted in a carrier 49 which is mounted to rotate around one of the bearings 40 and is provided with external teeth which are engaged by an adjusting pinion 50 which is fixed to a shaft 51 which is mounted in the frame, provided with a crank 52 whereby it may be manually turned to operate the adjusting mechanism and is adapted to be locked by a set screw 53. In operation, the sprocket 43 drives the ring-gear 45 which rotates the idlers 46 to drive the gear-wheel 48 which is fixed on cutter-shaft 39. Whenever timing of the cutter 37 relatively to the forming mechanism is necessary, the crank 52 will be turned to rotate pinion 50, carrier 49 and studs 47, imparting a planetary movement to the pinions 46 which will shift the gear 48 and rotate shaft 39 while the ring-gear 45 and sprocket 43 remain stationary. This adjustment may be made while the sprocket 43 is being driven, because the movement of carrier 49 may be then effected and will cause the necessary relative movement between gear 48 and the ring-gear 45 to effect the desired adjustment. As a result, the cutter 37 may be quickly timed. This adjustment is also used to time the cutter 37 when the speed of the sprocket wheel 43 is changed to cut wrappers of different lengths.

The invention exemplifies a machine for making lamp wrappers in which a printed web is used to form the fly sheets; in which the cutting mechanism may be quickly and easily timed either when the machine is in operation or at rest to cause the web to be cut between the printed portions of the web.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a machine for making wrappers, the combination of mechanism for corrugating a web and for applying a printed web to the corrugated web, a cutter for the web, mechanism for synchronously driving the applying and forming rolls and the cutter, and adjustable means for timing the cutter relatively to the printed web without disconnecting it from the driving mechanism.

2. In a machine for making wrappers, the combination of mechanism for corrugating a web and for applying a printed web to the corrugated web, a cutter for the web, mechanism for driving the applying and forming rolls, and variable speed driving mechanism for the cutter, and adjustable means for timing the cutter relatively to the printed web without disconnecting it from its driving mechanism.

3. In a machine for making wrappers, the combination of mechanism for corrugating a web and for applying a printed web to the corrugated web, a cutter for the web, mechanism for synchronously driving the applying and forming rolls and the cutter, and adjustable mechanism for timing the cutter relatively to the printed web without disconnecting it from the driving mechanism comprising a gear for driving the cutter, a gear driven by said driving mechanism and adjustable idlers between said gears.

4. In a machine for making wrappers, the combination of mechanism for corrugating a web and for applying a printed web to the corrugated web, a cutter for the web, mechanism for synchronously driving the applying and forming rolls and the cutter mechanism, and adjustable mechanism for timing the cutter relatively to the printed web without disconnecting it from the driving mechanism comprising a gear for driving the cutter, a gear driven by said mechanism and adjustable planetary idlers between said gears.

5. In a machine for making wrappers, the combination of mechanism for corrugating

a web, and for applying a printed web to the corrugated web, a cutter for the web, mechanism for synchronously driving the applying and forming rolls and the cutter, and adjustable mechanism for timing the cutter relatively to the printed web without disconnecting it from the driving mechanism comprising a gear for driving the cutter, a gear driven by said driving mechanism, adjustable idlers between said gears, a rotatable carrier on which the idlers are mounted, and means for rotating the carrier.

6. In a machine for making wrappers, the combination of mechanism for corrugating a web, and for applying a printed web to the corrugated web, a cutter for the web, mechanism for synchronously driving the applying and forming rolls and the cutter, and adjustable mechanism for timing the cutter relatively to the printed web without disconnecting it from the driving mechanism comprising a rotatable gear-carrier, and a lever for rotating the carrier.

BERG HEINRICHS.