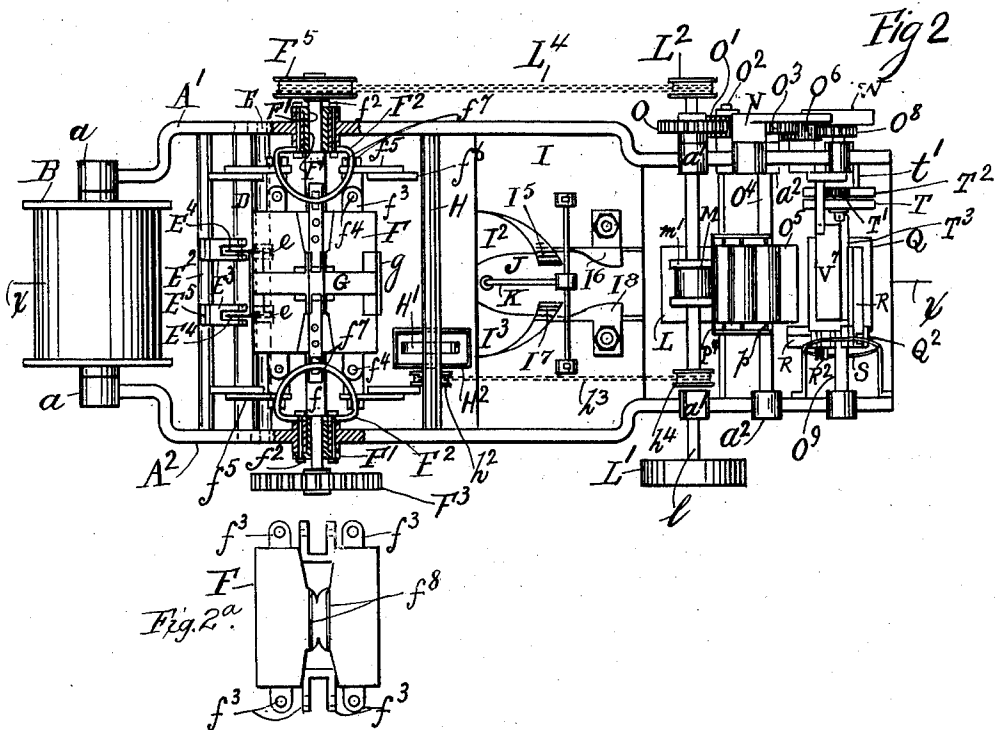
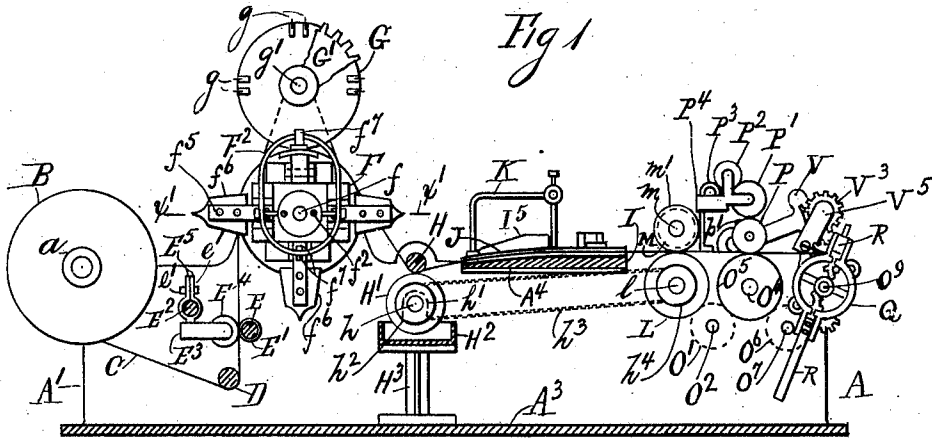


P. H. FARRELL.
 ENVELOP MAKING MACHINE.
 APPLICATION FILED OCT. 18, 1905.

972,176.

Patented Oct. 11, 1910.

3 SHEETS—SHEET 1.



Witnesses
 Myron H. Gough
 Rufus L. Weaver

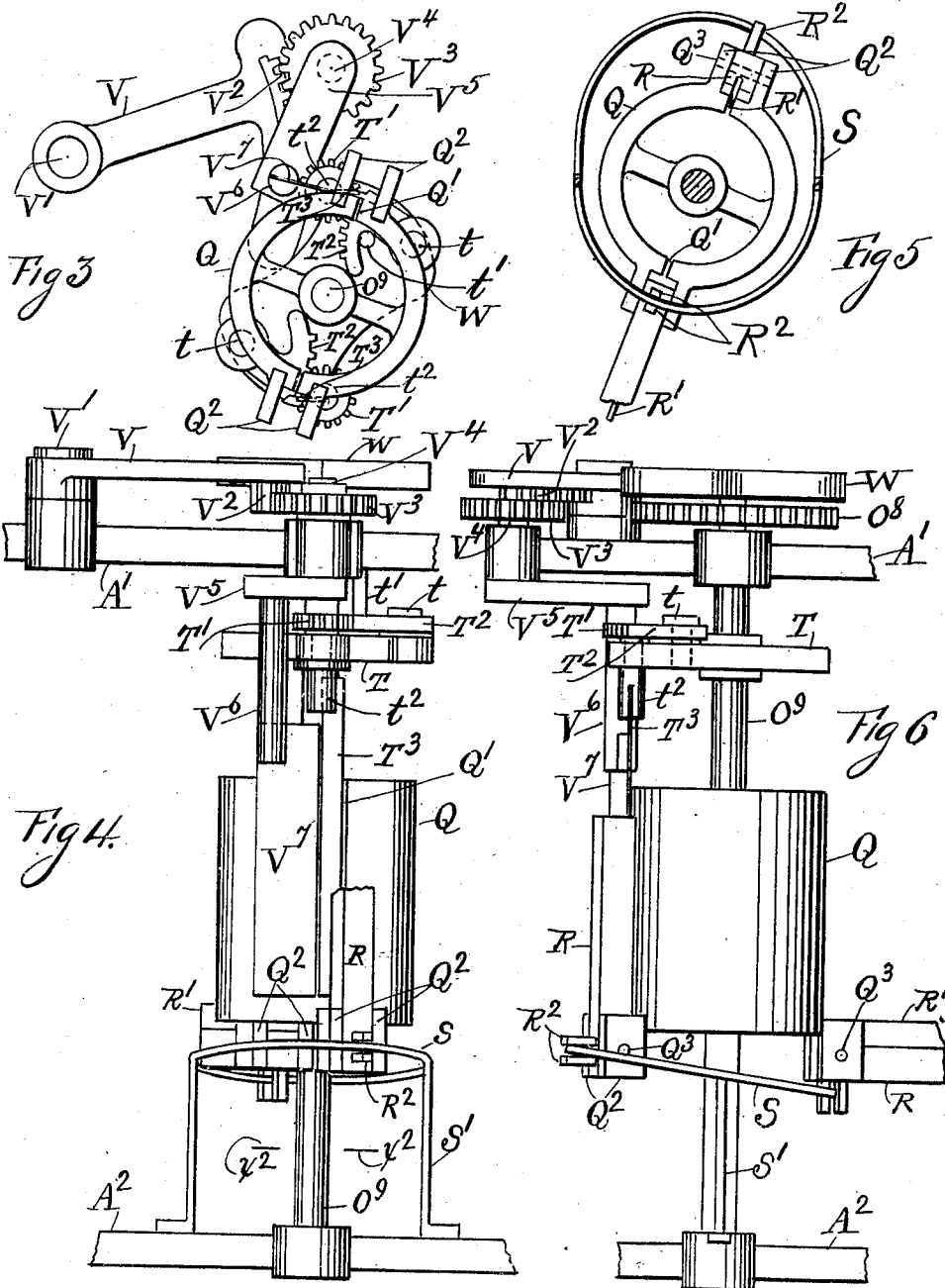
Inventor
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3 SHEETS—SHEET 2.



Witnesses
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Rufus L. Weaver.

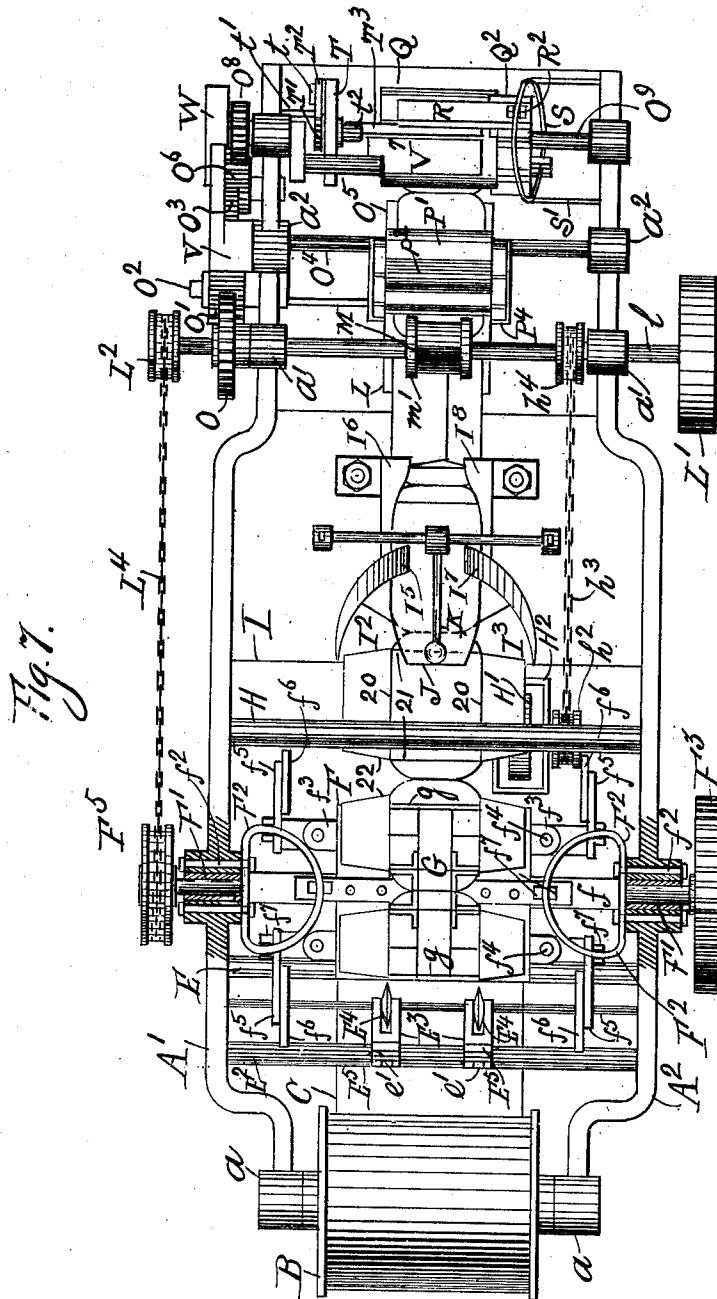
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3 SHEETS-SHEET 3.



Witnesses
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UNITED STATES PATENT OFFICE.

PHILIP H. FARRELL, OF FLUSHING, NEW YORK.

ENVELOP-MAKING MACHINE.

972,176.

Specification of Letters Patent.

Patented Oct. 11, 1910.

Application filed October 18, 1905. Serial No. 283,346.

To all whom it may concern:

Be it known that I, PHILIP H. FARRELL, a citizen of the United States, and a resident of Flushing, in the county of Queens and State of New York, have invented certain new and useful Improvements in Envelop-Making Machines, of which the following is a specification.

This invention relates to the cutting mechanism for a machine for making envelopes, bags and the like. Its organization comprises a rotating drum which carries one or more cutters, for cutting a sheet of paper or other material bearing on the drum, the said cutters being actuated by a stationary cam.

To exemplify the invention it is shown with a complete envelop making machine.

In the accompanying drawings which exemplify the invention Figure 1 is a partial vertical section of the invention, as on a line x , x of Fig. 2, Fig. 2 represents a plan view of Fig. 1, and partial section on the line x' , x' . Fig. 2^a shows a plan view of a blanking out drum. Fig. 3 shows an enlarged portion of Fig. 1 containing the knife, Fig. 4 is a plan view of Fig. 3 with a portion of the frame of the machine, Fig. 5 shows a partial end view and section of Fig. 4 on the line x^2 , x^2 , Fig. 6 is a side view of Fig. 4. Fig. 7 shows an enlarged plan view of the machine with the envelopes in their different stages of manufacture.

A frame is represented at A with the sides A', A². It supports a spool B, in the bearings a , for a sheet of material, paper and the like C. A roller D is journaled in the sides A', A² of the said frame.

A rod E is held in the frame which supports a pair of loose sleeves E', that each have a groove e . A rod E² extends between the sides of the said frame and carries the supports E³, for the creasing rollers E⁴. A pair of hangers E⁵ extend from end of the supports E³, and encircle the rod E², the bolts e' clamping the hangers E⁵ in position.

A blanking out drum F is secured to a rotating shaft f , the ends of which are carried in bushings F', which with the ring cams F² are clamped to the sides of the frame A, by means of the bolts f^2 . On the extension of the shaft f is secured the spur gear F³. Extending from the sides of the drum F are the journal bearings f^3 , which by means of the pins f^4 carry the cutter supports f^5 , from which latter extend the cut-

ters f^6 . Guide lugs f^7 , extend from the cutter supports f^5 and straddle the cams F².

Above the rotating blanking out drum F is journaled a creasing roller G on the shaft g' , which has extending from its circumferential surface the dies g , that crease the sheet of paper or other material over the notches f^8 in the surface of the drum F, the said notches being arranged to engage with the dies g . The shaft g' carries the spur gear G' which meshes with the spur gear F³.

A roller H is journaled in the sides of the frame A, and below the same is journaled a gumming wheel H', which rotates in a gum box H², on the spindle h supported in bearings h' extending from the sides of said box. The box is supported on a bracket H³ fastened to the lower plate A³ of the frame A. The spindle h carries a sprocket chain wheel h^2 , which is connected by the chain h^3 with a sprocket chain wheel h^4 on the shaft l .

Across the width of the machine and secured on shelves A⁴ extending therefrom, is the shelf I, that supports the aprons I² and I³. A cover plate J is held over the said aprons, by means of the rod K. A pair of feeding rollers L and M are supported on the shafts l , and m , the roller M having the flanges m' , so as not to bear on the portion of the paper which has been gummed, or on its longitudinal axial line. The shaft l is journaled in the bearings a' and carries the spur gear O, that meshes with the pinion O', on the spindle O². The pinion O' meshes with the spur gear O³ carried on the shaft O⁴, which latter is journaled in the bearings a^2 . On the shaft O⁴ is fastened the supporting roller O⁵, and over the latter is journaled the gumming roller P on the spindle p , and has the slight projection p' extending longitudinally across its circumferential surface. Over the roller P is the gumming roller P', which is driven by the projection p' of the roller P. The roller P² bears on the roller P', and the roller P³ bears on the roller P². The roller P³ rotates in the gum box P⁴. The spur gear O³ meshes with the pinion O⁶ carried on the spindle O⁷, and the pinion O⁶ meshes with the spur gear O⁸ which is fastened on the shaft O⁹. The shaft O⁹ carries the cutting off drum Q, which has the slots Q' longitudinally across its circumferential surface. At the ends of the drum Q project the bearings Q², for the spindles Q³, on which latter are carried the knife frames R with the knives R'. The

knife frames R have the lugs R² which straddle the ring cam S, that has the arms S', and by means of which latter is fastened to the sides A² of the frame A. On the shaft O⁹ is also fastened the disk T, from which are journaled on the spindles t² the spur gears T', that mesh with the spur sectors T², the latter being journaled from the disk T on the spindles t. A pin t' extends from the side A' of the frame and is located in the path of the sectors T². On the spindles t² of the spur gears T' are fastened the folding blades T³, that are arranged to bear on the paper or other material on the cutting off drum.

A sector V is journaled on the pin V' extending from the side A' of the frame, and it has the teeth V² that mesh with the teeth of the spur gear V³. The latter is fastened to the shaft V⁴ of the crank V⁵. From the latter extends the arm V⁶, that supports the holding blade V⁷. The sector V is arranged to engage with the cam W on the shaft O⁹.

On the shaft l is mounted the pulley L', and the sprocket chain wheel L², which latter is connected by the chain L⁴ to the chain wheel F⁵ on the shaft f.

To operate the invention the machine is driven by means of the pulley L'. The paper or other material on the spool B is led under the roller D, and from thence passes between the creasing rollers E⁴ and loose sleeves E', by virtue of which it receives two creases 20 that determine the width of the envelop to be produced. The paper, &c., then passes over the blanking out drum F, against which it is tightly held by means of the creasing roller G, the dies g of which form creases 21 therein to mark the length of the envelops. While the paper is on the drum F the cutters f⁸ blank out the paper to the proper form for the envelop, as shown at 22 the drum rotating and the cutters actuated by reason of the lugs f⁷ engaging with the ring cams F². The paper is next led under the roller H, when the gumming wheel H' gums one edge thereof. The paper then passes between the aprons I², I³ and the cover plate J. The folders I⁵ and I⁷ of the said aprons bend the paper at the longitudinal creases, and the folders I⁶ and I⁸ fold the paper down to form the envelop of the proper width. The folder I⁸ being a little in advance of the folder I⁶, the folded edge made by the folder I⁸ is under the edge of the paper folded by the folder I⁶. The folded paper now passes between the feeding rollers L and M, gripping the paper between its longitudinal axial line and the longitudinal edges, so as not to pass over

three thicknesses of paper, and not to spread the gum. The paper then passes between the supporting roller O⁵ and the gumming roller P, which are so proportioned that the projection p' gums the paper across its surface, so as to be enabled to gum and close one end of the finished envelop. The projection p' is gummed by means of the rollers P', P², P³ and gum pot P⁴. Now the paper passes on to the cutting off drum Q where it is first cut by the knives R', the latter being actuated while the drum is rotating, by reason of the engagement of the lugs R² with the ring cam S, which move the knives through the material and slots on the said cutting off drum and out again. The cut end of the material is then held in position by means of the holding blade V⁷, which has a movement to and from the surface of the drum Q. Before the blade V⁷ leaves the material on the drum Q the folding blade T³ starts to turn over and fold the end of the material to form the closed end of the envelop, securing the portion that has been gummed across its face in place. After the envelop is formed and folded as just described, the holder V⁷ moves away from the drum, and folder T³ turns to its original position shown in the drawings and the envelop is fed forward and cut off by one of the knives.

Having described my invention, I claim:

1. In an envelop making machine the combination of a blanking-out drum, means to feed a sheet of material to the drum, means to rotate the drum, a cutter journaled with the drum and arranged to operate through an opening in the surface of the drum, a ring cam adjacent to the drum, and lugs extending from the cutter straddling the ring cam.

2. In an envelop making machine the combination of a blanking out drum, having openings in its circumferential surface, means to feed a sheet of material to the drum, means to rotate the drum, lugs extending from the drum adjacent to said openings, cutter supports pivoted in the lugs, cutters extending from said supports, lugs on the supports, a ring cam in the machine straddled by the latter lugs so that they will follow the path of said ring cam during the rotation of the drum.

Signed at New York in the county of New York and State of New York this 14th day of October A. D. 1905.

PHILIP H. FARRELL.

Witnesses:

MYRON H. COOK,
DAVID J. HAVENSTRITE.