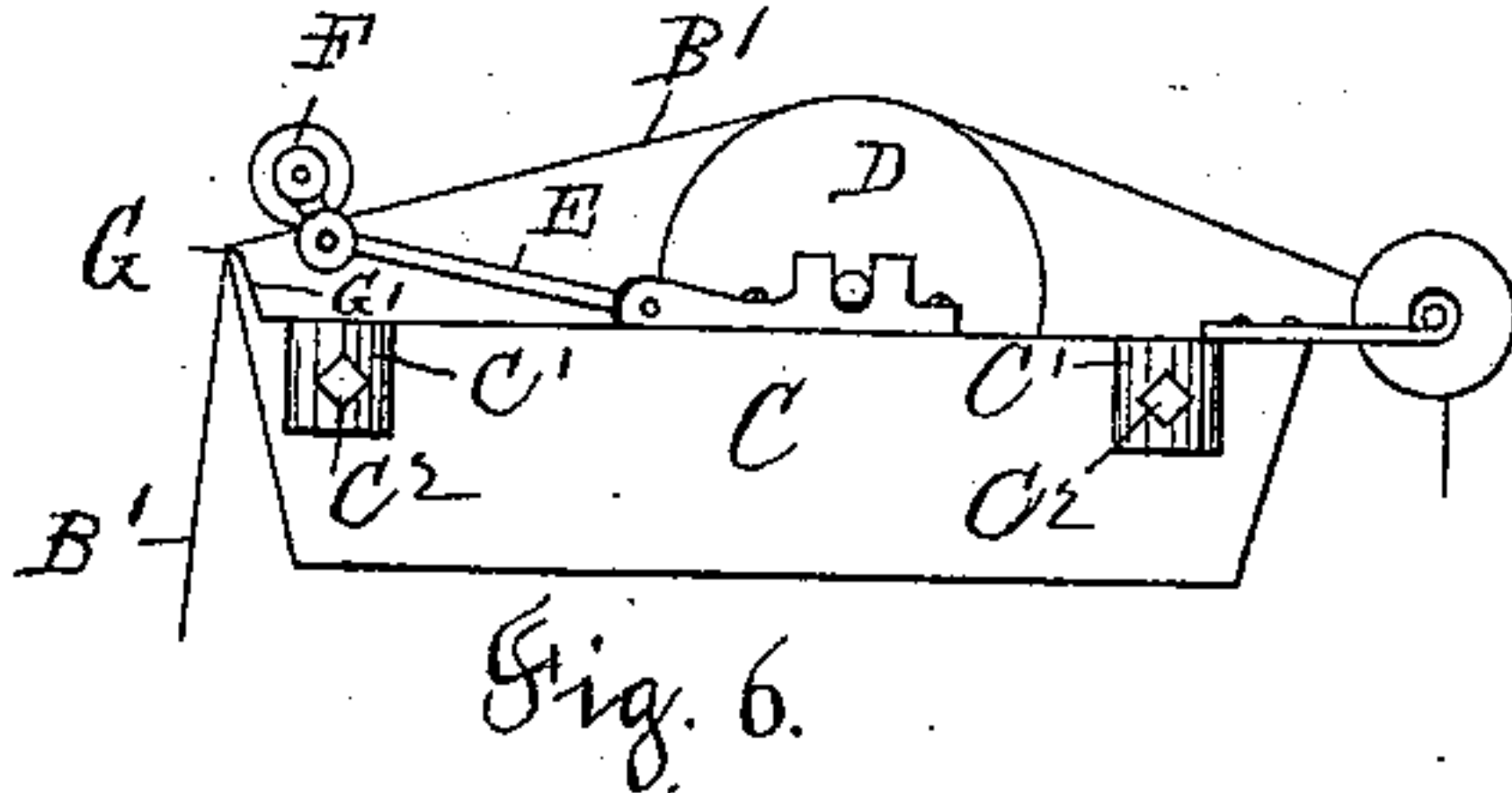
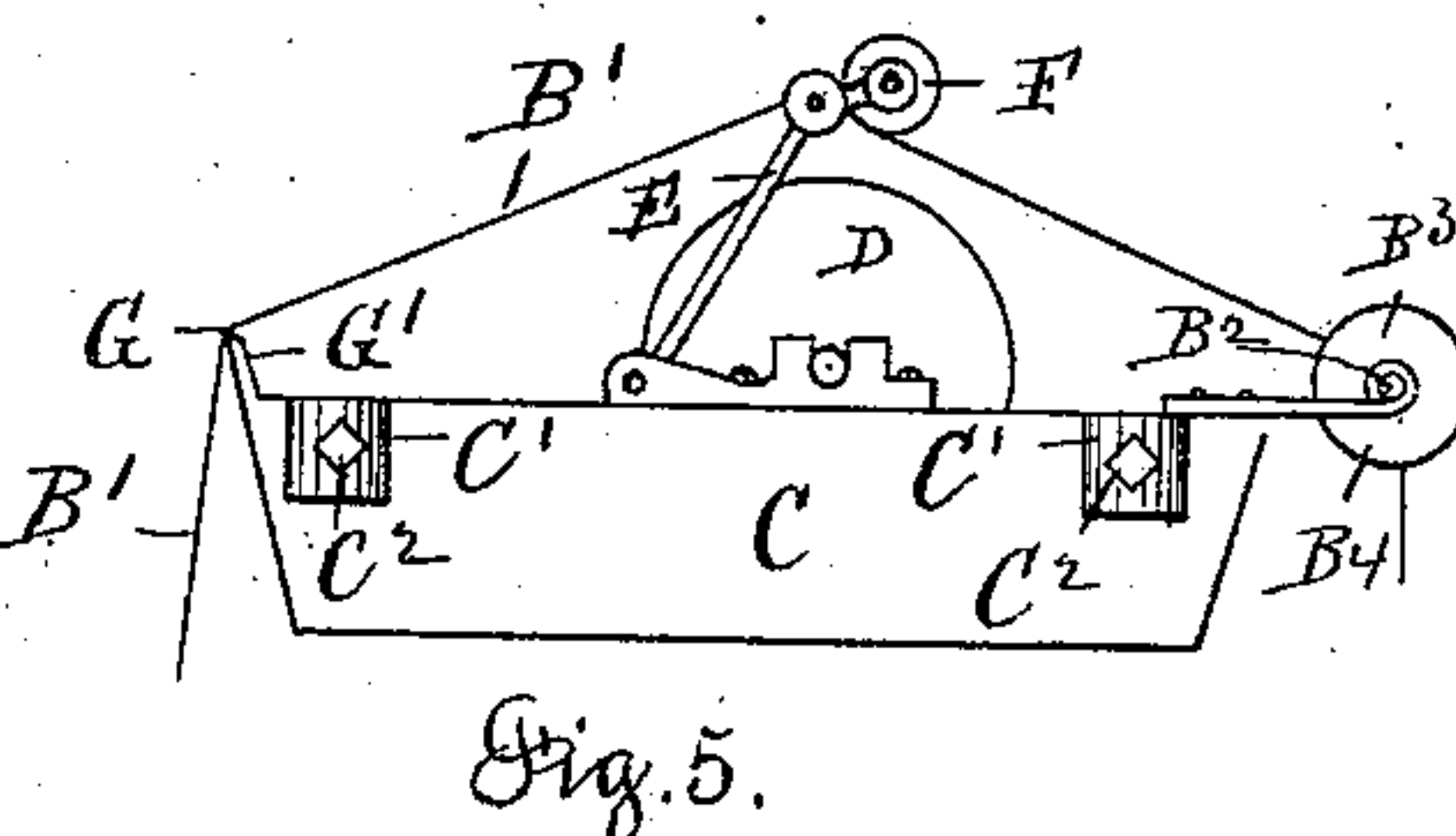
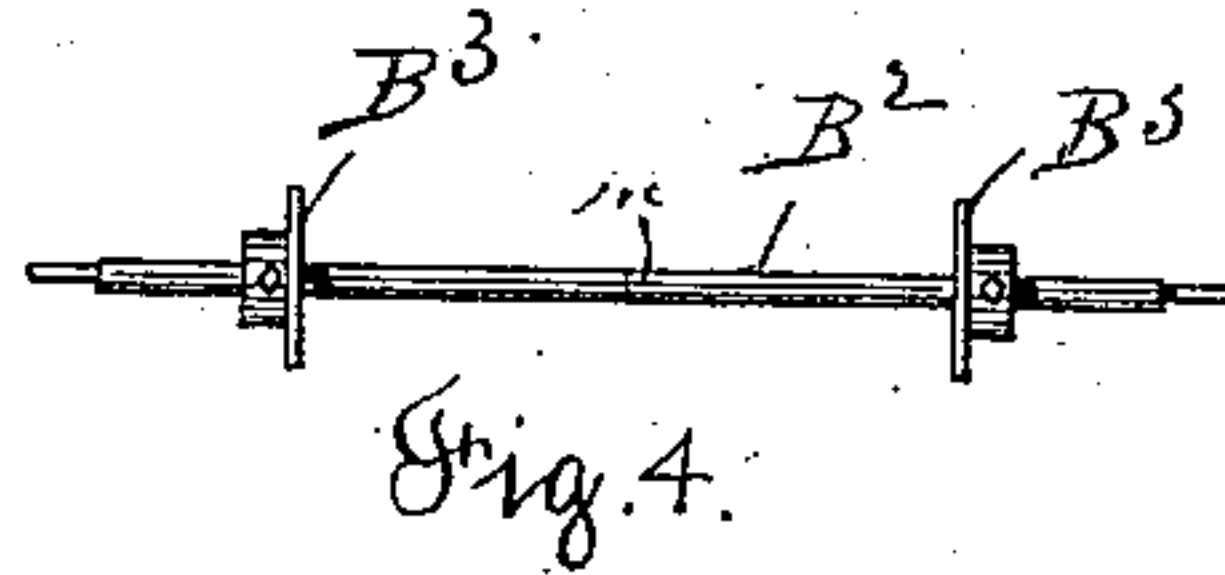
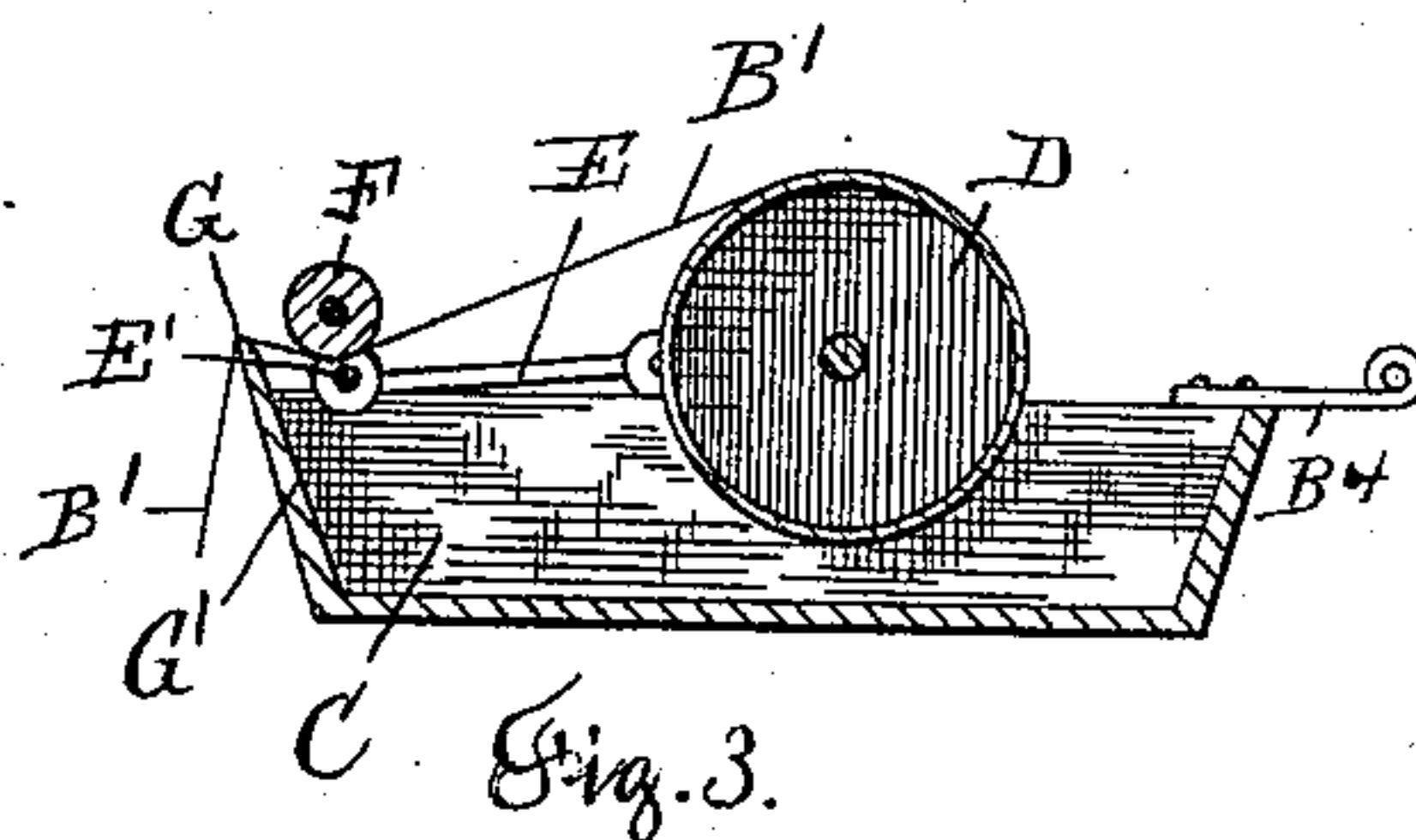
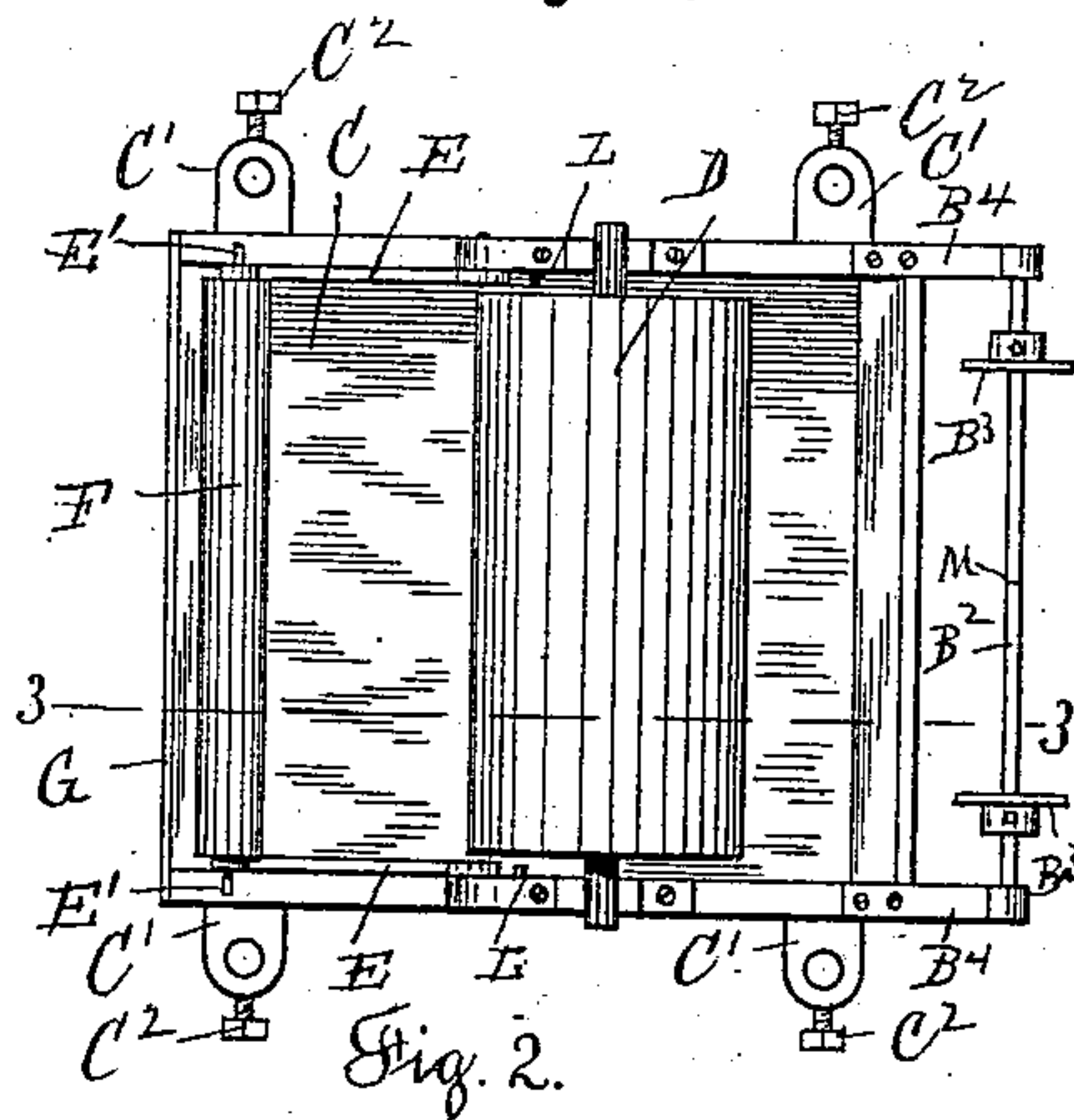
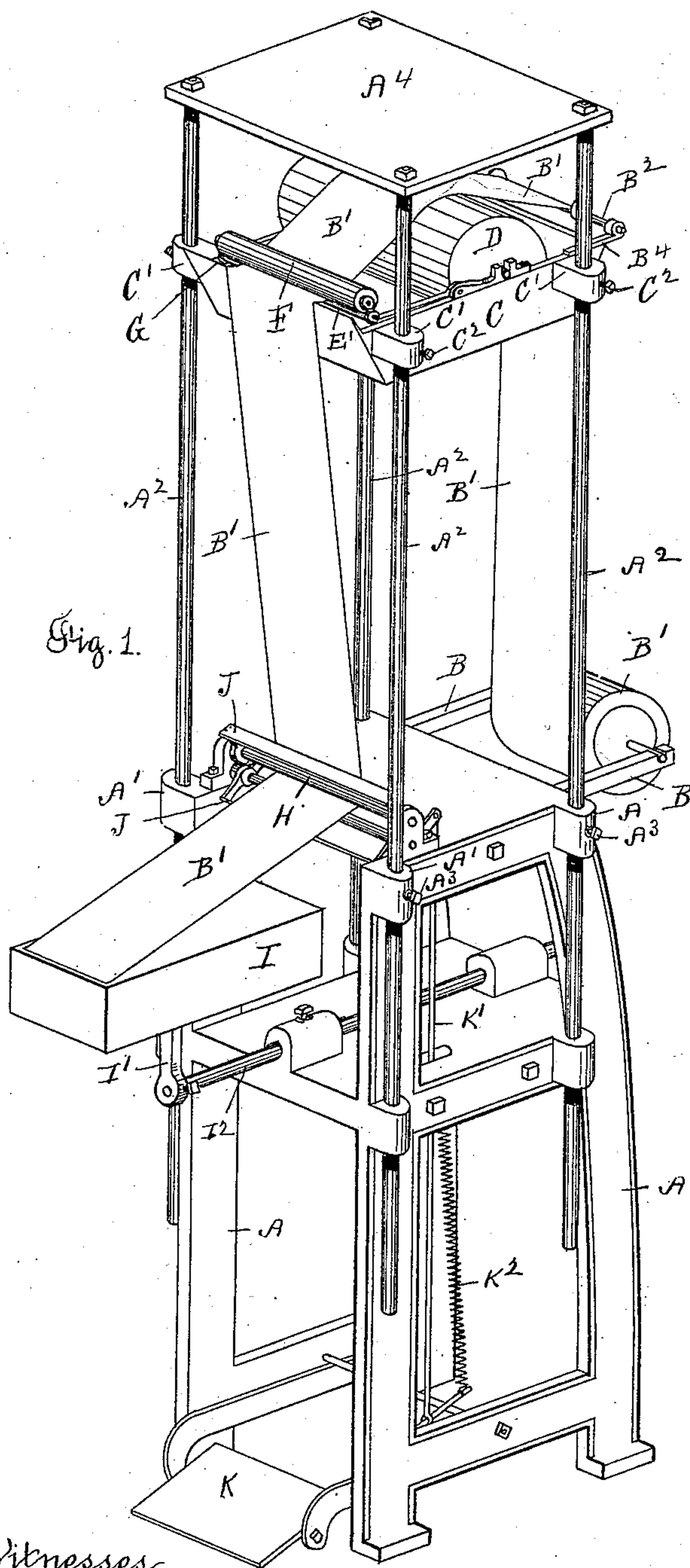


(No Model.)

C. W. HOBBS.
PAPER BOX COVERING MACHINE.

No. 542,384.

Patented July 9, 1895.



Witnesses
Allie C. Whiting.
Emma Kester.

Inventor
Clarence W. Hobbs.
By his Attorney
Rufus B. Fowler.

UNITED STATES PATENT OFFICE.

CLARENCE W. HOBBS, OF LYNN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF, RICHARD SUGDEN, AND HARRY W. GODDARD, OF SPENCER, MASSACHUSETTS.

PAPER-BOX-COVERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 542,384, dated July 9, 1895.

Application filed October 10, 1892. Serial No. 448,319. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE W. HOBBS, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Paper-Box-Covering Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, and in which—

Figure 1 represents a perspective view of a paper-box machine embodying my invention. Fig. 2 is a plan view of the gum box or trough, containing paste or other adhesive material. Fig. 3 represents a sectional view of the gum-box on line 3 3, Fig. 2, and showing the position of the weighted roll, which rides upon the paper strip when allowed to fall by the lack of tension in the paper, thereby decreasing the angle between the paper and the side of the gum-box. Fig. 4 is a detached view of the graduated guide-bar and gages by which the strip of paper is conducted to the gum-roll. Fig. 5 is a side view of the gum-box, showing the position of the connected parts when the paper strip is raised out of contact with the gum-roll; and Fig. 6 is a side view of the gum-box, showing the position of the weighted roll, which rides upon the paper strip when raised by the tension of the paper.

Similar letters refer to similar parts in the different figures.

My invention relates to certain improvements in that class of machines for covering the outersurface of boxes with paper in which a continuous roll of paper supported by the framework of the machine is conducted across a gum-roll partially immersed in paste or adhesive material, by which the adhesive material is applied to the surface of the paper in contact with the roll, the continuous strip of gummed or pasted paper being cut into suitable lengths by a shearing or cutting mechanism as it is drawn forward.

Machines of this class are shown in the Letters Patent of the United States Nos. 58,466 and 244,919, and my present invention consists in certain improvements in the machines therein shown, and having for its object to se-

cure the proper tempering of the paper without the employment of a multiplicity of rolls or other mechanism for supporting the paper after it is gummed and to prevent the gummed surface of the paper from being brought into contact with any portion of the machine after it has left the gum-box, and also to provide means for the uniform distribution of paste or gum upon the surface of the paper and for the more convenient manipulation of the paper in its passage across the gum-roll.

Referring to the accompanying drawings, A denotes the framework of the machine, provided with lugs A', in which are the vertical rods A², united at their upper ends by the plate A⁴ and adjustably held by means of the set-screws A³.

Extending from the rear of the frame are brackets B B, upon which is supported a roll of paper in a continuous strip B', which is conducted over a guide-rod B² attached to the gum-box C and carrying the disks B³, placed upon the rod B² in proper position to guide the strip of paper B' in alignment with the box to be covered.

The gum-box C is provided with lugs C' and set-screws C², by which the gum-box is adjustably supported upon the vertical rods A², and rotating in bearings supported by the gum-box C is a gum-roll D, partially immersed in a solution of gum or paste contained in the gum-box.

E E denote levers pivoted at the side of the gum-box C, having their free ends united by a rod E' and provided with journal-bearings for a roll F. The rod E' extends a short distance beyond the levers E E, so as to rest upon the upper edges of the gum-box C and support the roll F in its normal position, with its lower side below the edge G of the gum-box, so the strip of paper B' as it is conducted between the rod E' and the roll F and over the edge of the gum-box will be borne down by the weight of the roll F and levers E E and form an acute angle with the side G' of the gum-box, as represented in Fig. 3.

Held by the framework of the machine at some distance below the edge G of the gum-

box is a rod H, beneath which the paper strip B' passes to the box held upon the "former" I in the usual manner in machines of this class.

When the free end of the strip B' has been applied to the box, as represented in Fig. 1, the strip is severed by shearing-blades J J, carried upon radial arms which rotate about horizontal axes and are operated by a foot-treadle K and connecting-rod K', the motion of the cutting-blades being reversed by a spring K² when the treadle K is released.

The former I consists of a block fitting the inside of the box to be covered and supported upon a post I', which is attached to a rod I² held by the framework of the machine.

The operation of the machine is as follows: The continuous strip of paper B' is conducted from the roll supported in the brackets B over the guide-rod B², between the flanges B³, by which the lateral position of the paper is determined, over and in contact with the gum-roll D, between the rod E' and roll F, and over the edge G of the gum-box and beneath the rod H. The box to be covered is placed upon a block or former I. The paper strip is then severed by the blades J cutting off a suitable length to cover the bottom of the box. Another box is then placed upon the former I and the operation repeated, the paper strip being successively drawn over the gum-roll D, by which the paste or other adhesive material is applied to the under side of the paper. The gummed surface of the paper is drawn over the edge G of the gum-box, which acts as a scraper to remove the surplus gum or paste, and the scraping action of the edge G is varied inversely to the angle included between the side G' and the paper strip as it approaches the edge G. When the paper strip is drawn slowly over the gum-roll D the angle between the paper strip and the gum-box is reduced, as the paper strip is borne down by the roller F in the position shown in Fig. 3; but if the speed of the paper strip is sufficiently increased its tension will cause the roll F to be raised and the angle to be increased, as represented in Fig. 6, and the scraping action of the edge G automatically regulated. When necessary to raise the paper strip out of contact with the gum-roll the levers E are raised into the position shown in Fig. 5 and supported by the inwardly-projecting spurs L L, Fig. 2, carrying the rod E' over the roll D and supporting the paper strip out of contact with the gum-roll. For the purpose of adjusting the paper strip in its passage over the gum-roll, so as to bring it readily into alignment with the paper box held upon the former, I provide the guide-rod B² with an index-mark M in the same vertical plane as the center of the former I, and I graduate the guide-rod B² from the index-mark M toward the ends of the rod, thereby enabling the disks B³ to be placed in the exact position necessary to bring the paper strip B' in proper alignment with the box to be covered. For example, if the paper

strip B' is four inches in width the disks B³ are attached to the guide-rod B² four inches apart and each two inches from the index-mark M, which will bring the center of the paper strip in alignment with the center of the box.

The gum-box C is vertically adjustable upon the rods A², so as to increase the distance between the edge G and the rod H sufficiently to allow the paper to become "tempered," or the gummed paper be brought into proper condition to be applied to the surface of the box, it having been found in practice to be advisable, if not absolutely necessary, to allow a little time to elapse for the gum to become "set" by evaporation and for moisture to be absorbed by the fibers of the paper, and to accomplish this result a considerable length of paper must be maintained between the gumming apparatus and the box to be covered, which will vary with the length of the strip to be applied to the box and the quality of paper. It has heretofore been customary in machines of this class to support the paper after it leaves the gum-box by a series of rolls, rods, or similar contrivances, part of which are necessarily brought into contact with the gummed surface of the paper.

In my improved machine I elevate the gum-box far enough above the former and with its edge G in a vertical plane, which is, preferably, slightly in advance of the rod H, so that the paper strip B' after leaving the edge G will be suspended by its own weight and without the necessity of any supporting rolls or rods, and as it is drawn over the gum-roll the ungummed surface of the paper only is brought into contact with the guide-rod H.

By locating the guide-rod H at some distance below and slightly beneath the scraping-edge G, from which the paper is delivered, or, in other words, placing the scraping-edge G slightly in advance of the vertical plane containing the rod H, I cause the weight of the paper strip which is suspended from the edge G to be carried by its own weight against the rod H, so that when the paper strip has been severed by the cutting-blades the end will remain in a convenient position to be seized by the operator and drawn forward over the former I to be applied to the next succeeding box. If the rod H were located in advance of the edge G the lower end of the paper strip, as it was drawn by the operator, would be brought in advance of a vertical plane, and when the strip was severed by the cutting-blades the weight of the paper strip would cause it to draw back, withdrawing its free end.

I am aware that the box-covering machines heretofore made comprise a support for a paper-roll, a gum-box, a gum-roll journaled in the gum-box, a scraping-edge for scraping the surplus from the paper, and guide-rods or rolls by which the gummed strip of paper is conducted to the former, and I do not claim broadly a machine comprising these several

parts; but by the relative location of the support for the paper-roll, gum-box C, guide-rod H, and former I, I am able to secure the advantages hereinbefore pointed out, allowing a long stretch of paper between the paper-roll and the gum-box and a sufficient length of paper between the gum-box and the former to secure the requisite tempering of the gummed paper and obviating the multiplicity of rolls and guide-rods for supporting the paper during the tempering process, and also keeping the gummed surface of the paper out of contact with any portion of the machine between the gum-box and former and causing the free end of the paper strip when severed by the cutting mechanism to remain in position to be seized by the operator and applied to the succeeding box.

The paper-roll is supported upon the brackets B in substantially the same horizontal plane as the rod H, in order to increase the distance between the paper-roll and the guide-rod B², which prevents any irregularity in the winding of the paper in the roll from affecting its delivery between the flanges B³.

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

1. In a paper box machine, the combination with a supporting frame-work A provided with lugs A' of the parallel vertical rods A² held in said lugs, plate A⁴ uniting the upper ends of said rods, brackets B, B projecting from said frame-work for supporting a roll of paper, gum box C held between said vertical rods A² and having its edge G adapted to scrape the gummed surface of the paper, gum roll D journaled in said box, rod H supported by the frame-work and located vertically below said scraping edge G, whereby the strip of gummed paper as it leaves said edge G, is held by gravity against said rod H with its ungummed side in contact therewith, substantially as described.

2. In a paper box machine, the combination of a gum box C, gum roll D journaled in said gum box, scraping edge G formed on the side of said gum box, guide rod H located vertically below and beneath said edge G, whereby the gummed strip of paper as it leaves the edge G will hang by its own weight with its ungummed side against said rod H and a former I placed below and in front of said rod H and means for severing the paper strip, substantially as described.

3. In a paper box machine, the combination with a gum-box provided with a scraping edge G, of the levers E, E, weighted roll F, carried by the free ends in said levers and arranged to ride upon the paper strip in its passage from the gum roll to said scraping edge and be raised by an increase in the tension of the paper strip, whereby the angle of the paper strip is varied as it approaches the scraping edge, substantially as described.

4. In a paper box machine, the combination with the gum roll and gum-box of the levers E, E, pivoted at one end to said gum-box and carrying the rod E' and roll F at their free ends, between which the paper strip passes, and spurs L, L, by which said levers are supported in an upright position with the rod E' above the gum roll, substantially as described.

5. In a paper box machine, the combination of a frame-work A, brackets B, B projecting from said frame-work for supporting a roll of paper, vertical parallel rods A² held by said frame-work, gum box C adjustably held between said vertical rods A², gum roll D journaled in said gum box, brackets B⁴ carried by said gum box and a guide rod B² held by said brackets, substantially as described.

Dated this 30th day of September, 1892.

CLARENCE W. HOBBS.

Witnesses:

RUFUS B. FOWLER,
EMMA KESTER.