(No Model.) 2 Sheets—Sheet 1.

M. PURDIN.

MACHINE FOR MAKING PAPER TOOTHPICKS.

No. 596,714. Patented Jan. 4, 1898.

Fig. 1.

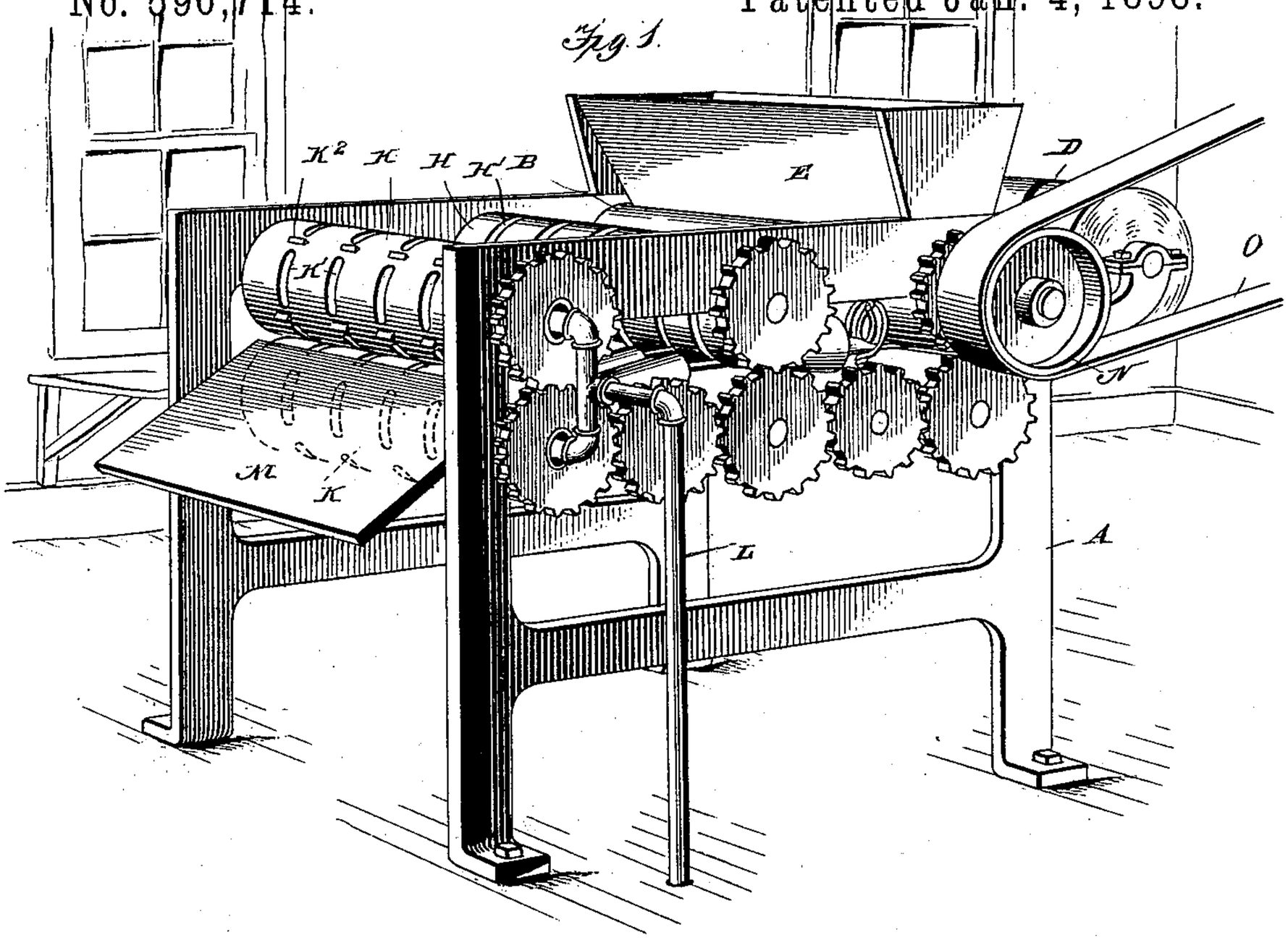
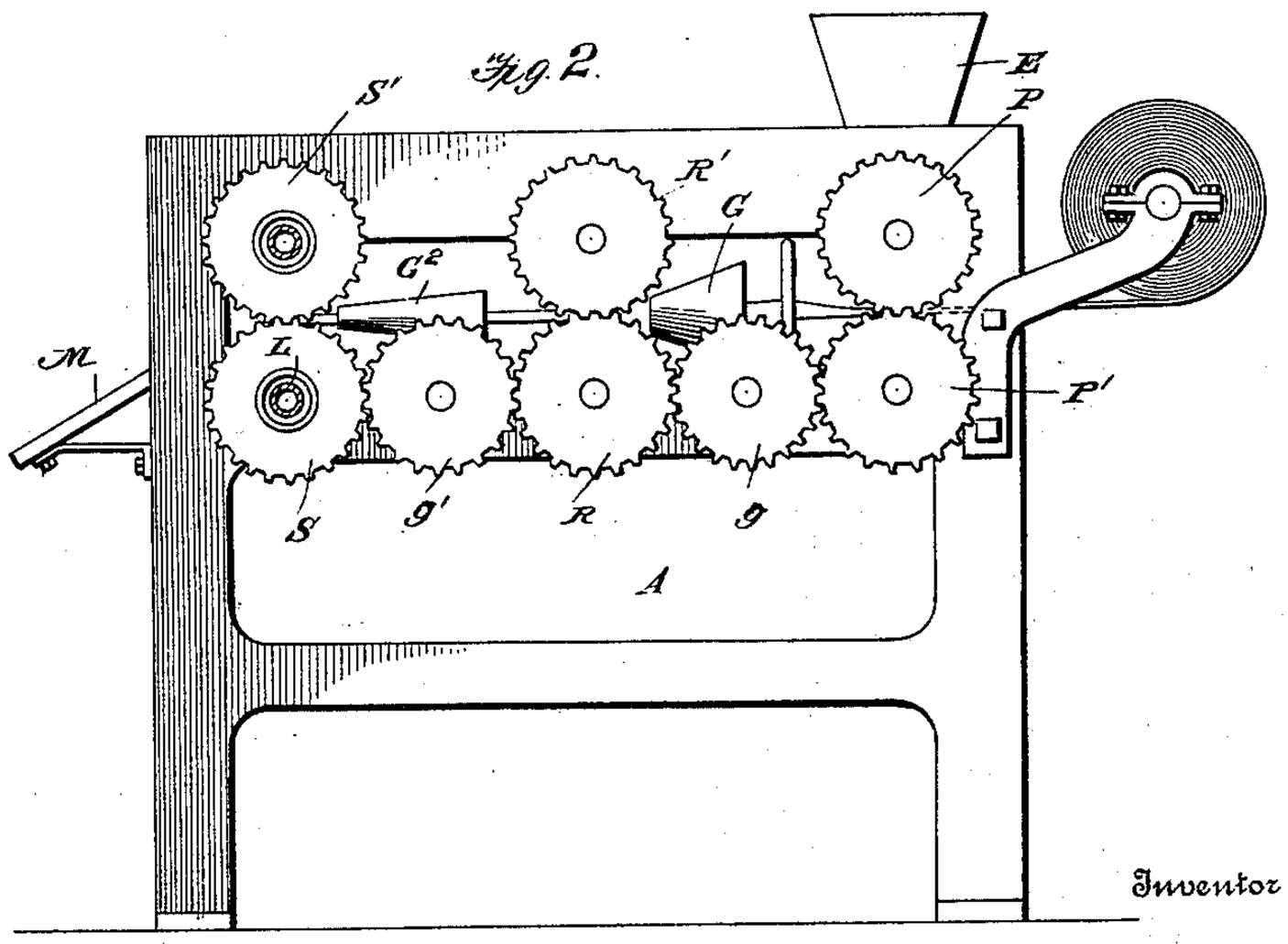


Fig. 2.



Witnesses
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Fig. 8.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

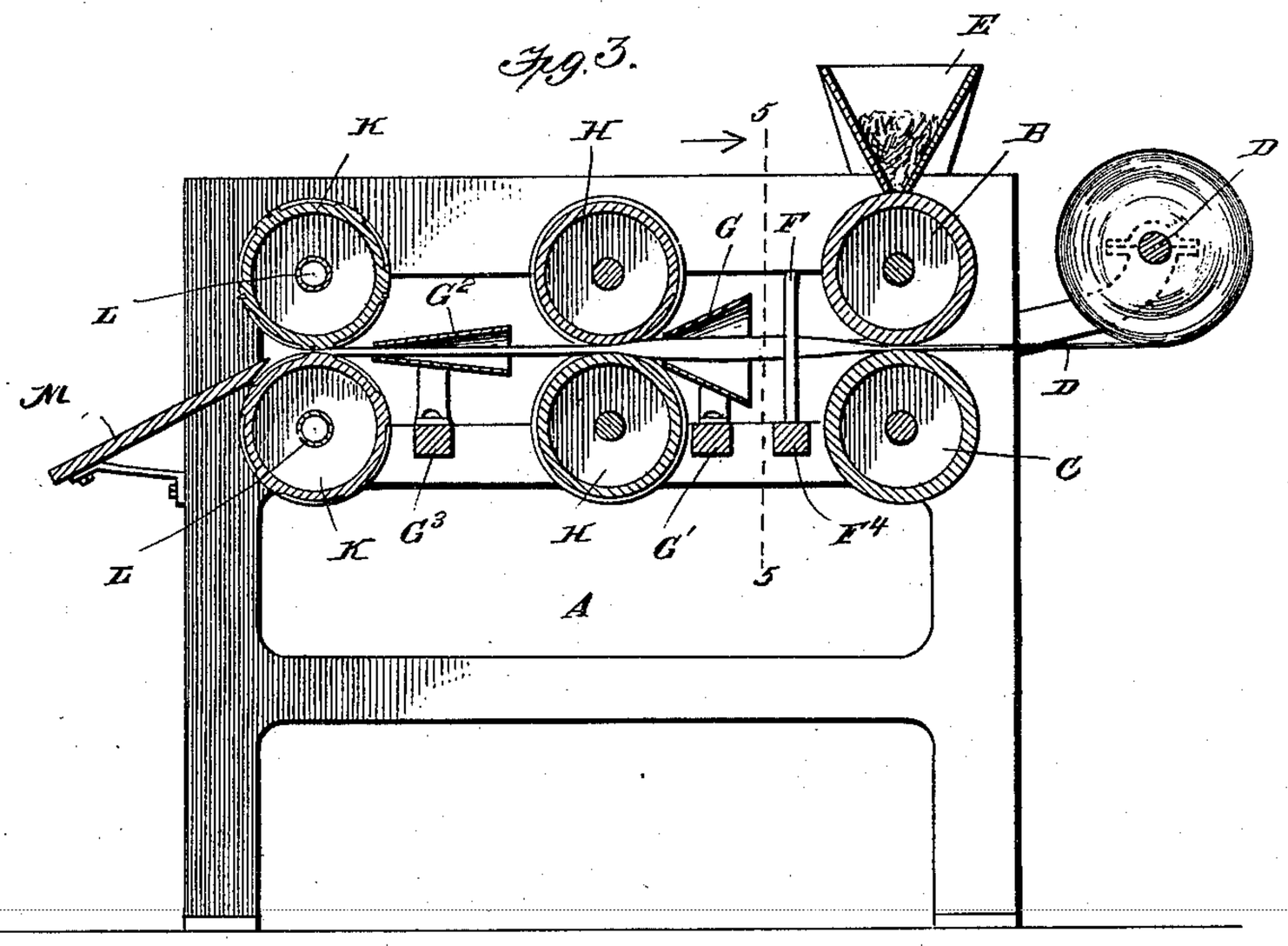


Fig. 4.

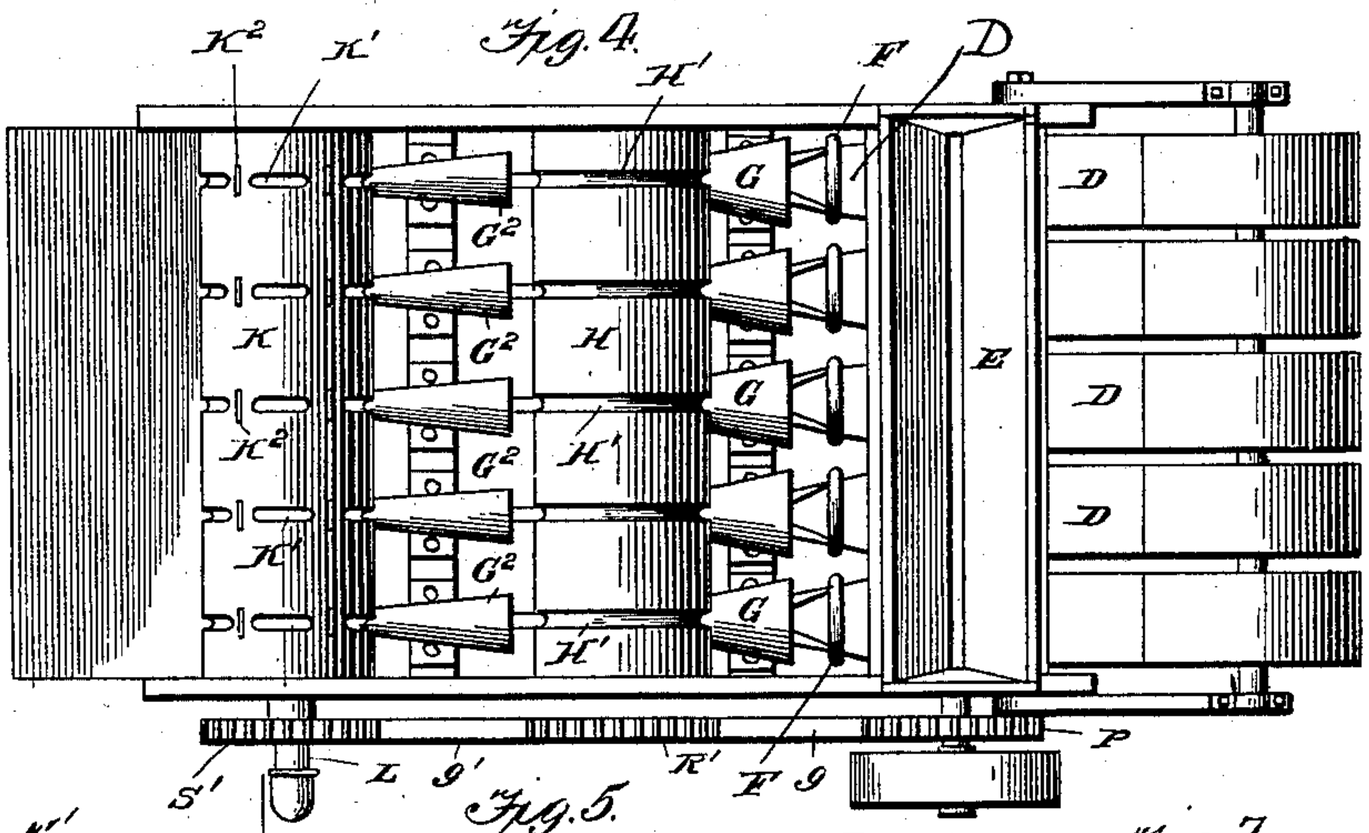


Fig. 6.

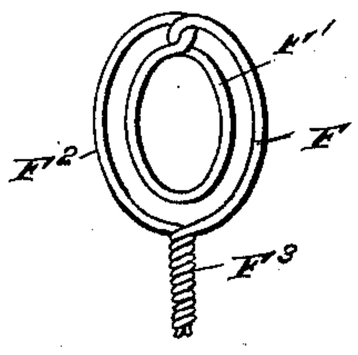


Fig. 5.

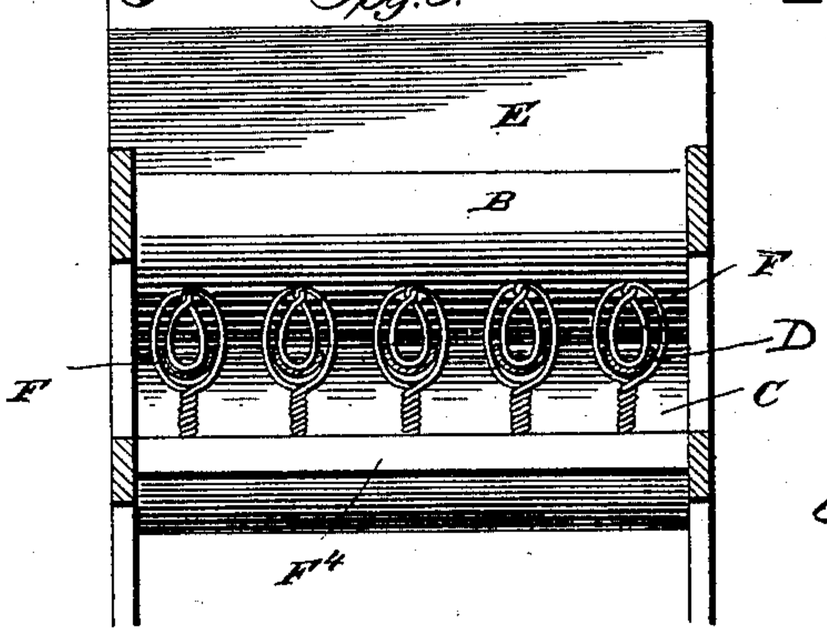
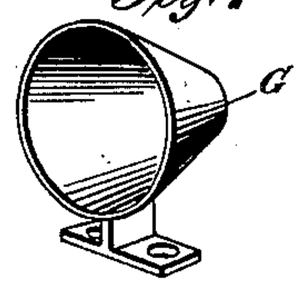


Fig. 7.



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UNITED STATES PATENT OFFICE.

MAHLON PURDIN, OF MEDFORD, OREGON.

MACHINE FOR MAKING PAPER TOOTHPICKS.

SPECIFICATION forming part of Letters Patent No. 596,714, dated January 4, 1898.

Application filed February 18, 1897. Serial No. 624,040. (No model.)

To all whom it may concern:

Be it known that I, MAHLON PURDIN, residing at Medford, in the county of Jackson and State of Oregon, have invented a new and useful Machine for Making Paper Toothpicks, of which the following is a specification.

My invention relates to a machine for making paper toothpicks, and has for its object to provide a machine whereby an exceedingly large number of such toothpicks can be quickly and easily made in a short space of time.

Another object of the invention is to provide a machine which will fold, paste, and cut the toothpick at the proper interval, all of such various objects so timed and carried out that the paper will start in one end of the machine as a strip and emerge from the opposite end a completed toothpick.

With these various objects in view my invention consists in the peculiar construction of the various parts and in their novel combination or arrangement, all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a view showing the machine ready for operation. Fig. 2 is a side elevation, the heating-pipes being shown in sections. Fig. 3 is a vertical longitudinal section. Fig. 4 is a top plan view. Fig. 5 is a transverse vertical section on the line 5 5 of Fig. 3, looking in the direction of the arrow. Fig. 6 is a detailed view of one of the formers. Fig. 7 is a detail perspective view of one of the twisting-guides, and Fig. 8 is a detail perspective view of the completed toothpick.

In the practical embodiment of my invention I employ a suitable frame A, in the rear end of which are journaled a pair of rolls B and C, the upper roll being designated as the "pasting-roll" and the roll C being designated as the "drawing-roll," the purpose being to draw the paper strip D from the roll D', and as the said strip of paper passes between the drawing and pasting rolls it is coated upon one side with a definite quantity of adhesive, said adhesive being supplied to the pasting-roll through a hopper E, mounted above the same. As the strip passes from between the pasting and drawing rolls it engages a folder F, which is made substantially after the pattern of two concentric ovals, said folder comprising the inner oval F' and the outer oval F^2, and in practice I prefer to construct the entire folder from a single piece of wire, the ends being twisted around each other, as shown at F^3, and fixed in the transverse beam F^4. As the paper passes through the folder it is curved longitudinally, as shown most clearly in Fig. 5, and from the folder it passes through a conical twisting-guide G, mounted upon a beam G', the purpose of said conical twisting-guide being to roll or wind the paper constructed by the folder, and after passing through the twisting-guide G the roll or twisted stock passed between a pair of rollers H, having mating grooves H', which impart a round shape to the stock after it has been properly twisted by the conical guide. A second conical twisting-guide G^2 is arranged upon a beam G^3 in advance of the rolls H of the stock and is passed through this second guide for the purpose of reducing the diameter and more closely rolling or twisting the same. The roll or twisted stock is then passed between a pair of rollers K, having a series of short grooves K', and between the short grooves K' are arranged the cutters K^2, said grooves being so arranged and of such length that as the stock is passed between them it will be severed in regular lengths, and at each end will be flattened, thereby producing a toothpick which is rounded throughout a greater portion of its length and flattened at each end, said flattened ends being tightly compressed and sealed, and in order to thoroughly seal the entire stock I heat rolls K by means of heated air or steam pipes L, which pass through the journals of these rolls.

The discharge board or table M is arranged at the forward end of the machine for the purpose of conducting the finished toothpicks to a suitable receptacle.

The paste-roll is driven by means of a pulley N, operated by a belt O, driven from any suitable source, and mounted upon the journal of the paste-roll is a gear P, which meshes with a similar gear P', mounted upon the end of the drawing-roll shaft, said roll P' meshing with an idler *g*, which meshes in turn with a gear R, mounted upon the end of the shaping-roll shaft, said gear R meshing with a gear R', mounted upon the end of the paper-shap-

ing-roll shaft. The gear R also meshes with another idler g', which in turn meshes with a gear S, mounted upon the end of the lower cutting-roll shaft, and this gear also meshes with an upper gear S'. By this means it will be seen that a uniform motion will be transmitted from the drive-pulley of all of the various parts of the machine.

In constructing my machine I propose to employ a number of paper-rolls and make the pasting and drawing rolls of such length as to operate upon the entire number of paper strips, and in this connection it will of course be understood that I shall use as many folders and guides as there are paper strips and the shaping and cutting rolls will be provided with as many grooves and knives as there are paper strips. Thus it will be seen that I can complete a number of toothpicks at each complete operation of the machine.

If desired, the toothpick can be filled with perfume or medicament, which can be distributed upon the paper strip at any time after leaving the folder.

It will thus be seen that I provide a toothpick which is formed of a single piece of paper flattened at the ends and rounded at the center, and it will also be seen that I provide an exceedingly cheap and simple machine for the construction of said toothpick.

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

1. In a machine for making paper toothpicks, the combination with pasting and drawing rolls, of a folder in rear of said rolls, shaping-rolls in rear of the folder, and a twister between the folder and shaping-rolls, substantially as described.

2. In a machine for making paper toothpicks, the combination with the pasting and drawing rolls, of the folder, the shaping-rolls and the cutting and compressing rolls, substantially as shown and described.

3. In a machine for making toothpicks, the combination with the pasting and drawing rolls, of the folder, the twisting-guide, the shaping-rolls, the reducing-guide, and the cutting and compressing rolls, all arranged and adapted to operate substantially as shown and described.

4. In a machine of the kind described, a folder comprising the inner and outer ovals, and the supporting-shank, all formed of a single piece of wire, substantially as shown and described.

5. In a machine for making paper toothpicks, the combination with the pasting and drawing rolls, of a folder in rear of the said rolls, shaping-rolls in rear of the folder, a conical twister between the folder and shaping-rolls, compressing and cutting rolls in rear of the shaping-rolls, and a second conical twisting-guide between the shaping and compressing and cutting rolls, substantially as described.

6. In a machine for making toothpicks, the combination with the frame of the paper-supporting rolls mounted at the rear end of the frame, the paste-hopper arranged upon the frame, the pasting and drawing rolls, the series of formers arranged upon a transverse beam, the series of conical twisters arranged upon a transverse beam, the circumferentially-grooved shaping-rolls, the reducing-guides, the combined compressing and cutting rolls, the heating-pipes extending therethrough, and the gearing devices for operating said rolls, substantially as shown and described.

MAHLON PURDIN.

Witnesses:
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WM. I. VAWTER.