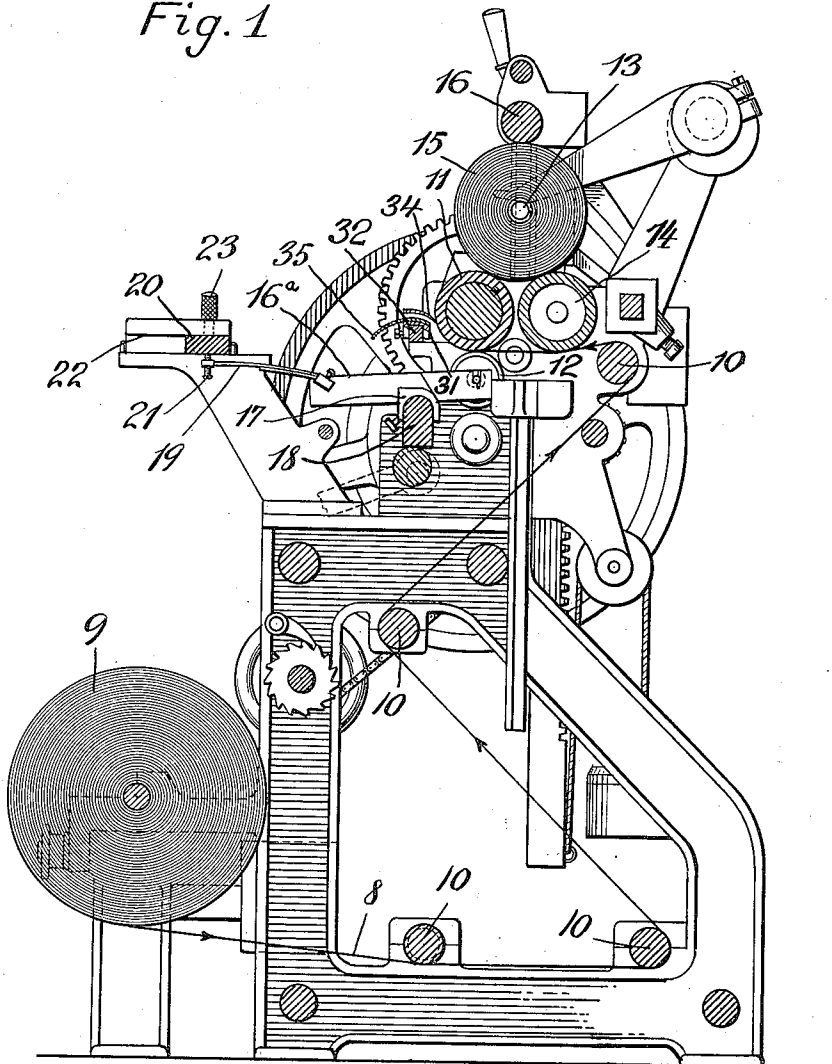


J. A. CAMERON & G. B. BIRCH.
SLITTING AND REWINDING MACHINE.
APPLICATION FILED MAR. 5, 1914.

1,148,146.

Patented July 27, 1915.
3 SHEETS—SHEET 1.

Fig. 1



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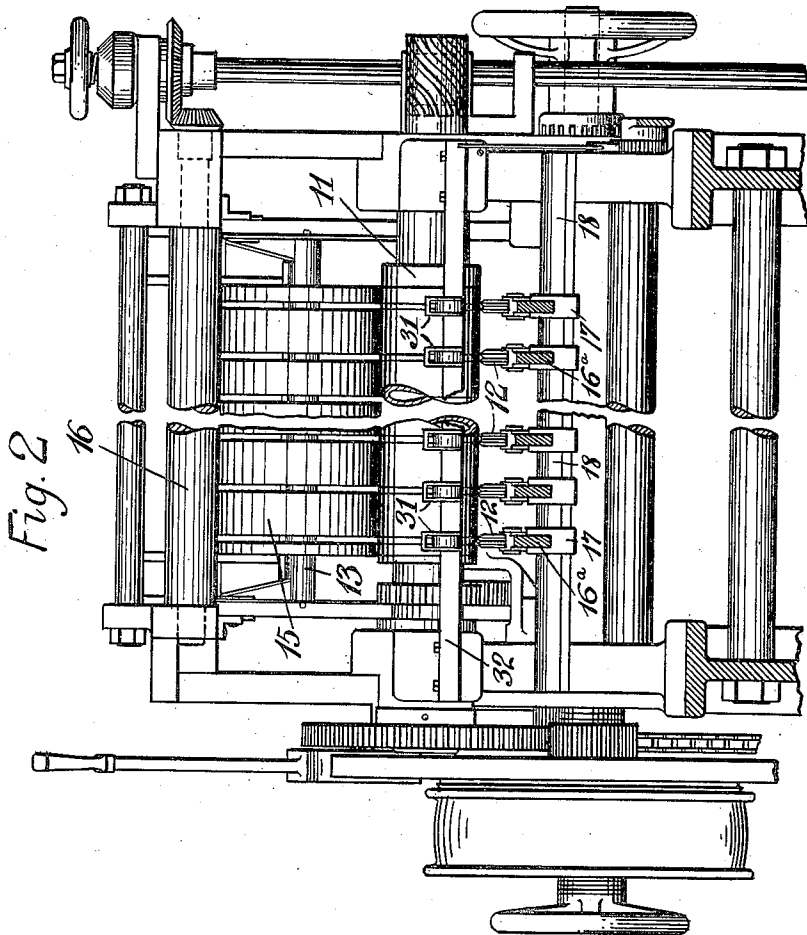
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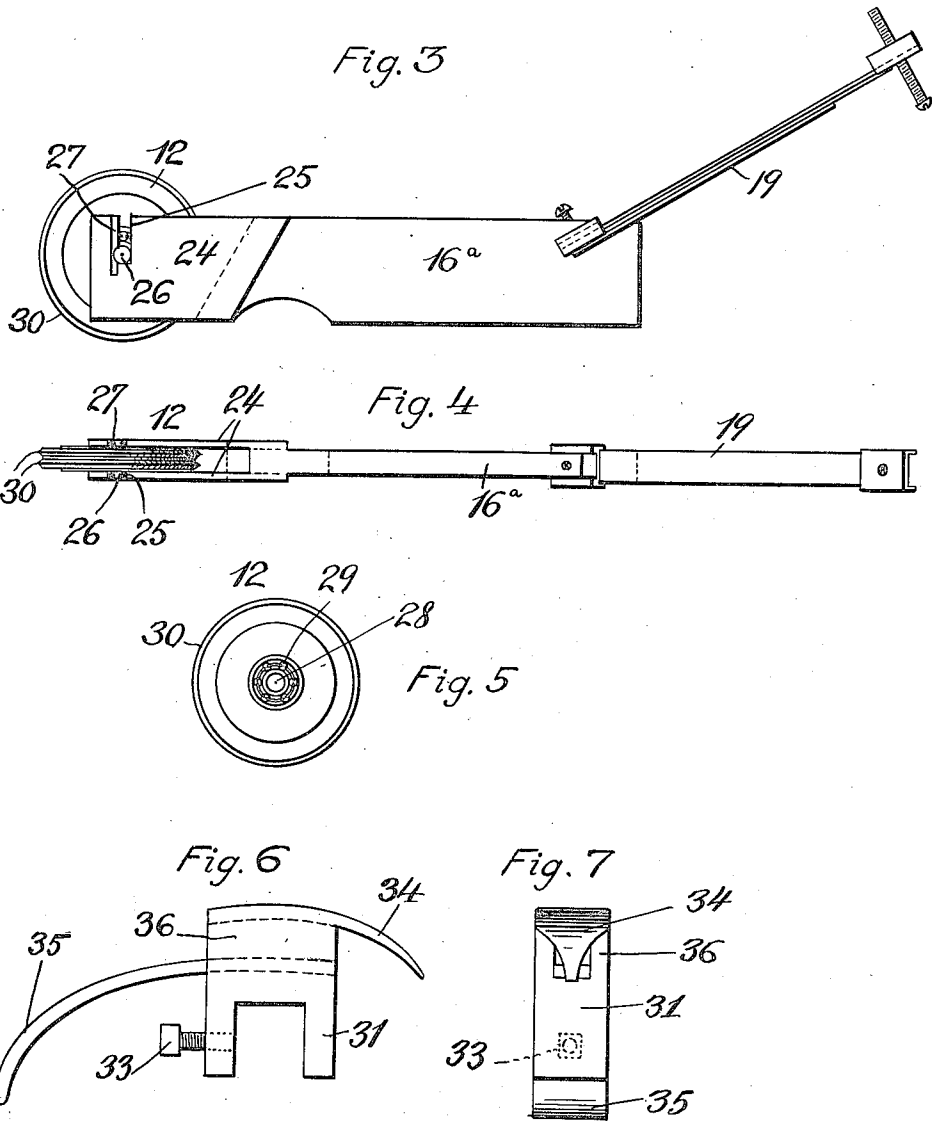
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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SLITTING AND REWINDING MACHINE.

1,148,146.

Specification of Letters Patent.

Patented July 27, 1915.

Application filed March 5, 1914. Serial No. 822,610.

To all whom it may concern:

Be it known that we, JAMES A. CAMERON and GUSTAF B. BIRCH, both citizens of the United States, and residents of the borough of Brooklyn, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Slitting and Rewinding Machines, of which the following is a specification.

In that type of slitting and rewinding machines in which the material is rewound into a plurality of coils on the same shaft, the rewinding device has, at times, a tendency to distort the paper or other material laterally. This distortion may be caused by the pull longitudinally on the web tending to crowd the edges of the slitted product together in that class of "center rewind" machines in which the coils are suspended without any surface supporting means.

In the "surface rewind" or other type where the paper is rewound under compression there is at times a tendency to compress the paper or other material unduly and to such an extent that the paper is "spread" thereby increasing the width of the web or of the several sections formed out of the web.

In the ordinary size of machine and when acting on certain material, the spreading action is practically negligible, but in very wide machines and when acting on a certain class of material, this action may become considerable enough to cause an interweaving of the material in adjacent coils when rewound.

The main object of this invention is to eliminate the disadvantageous results due to this interweaving, and the invention accordingly consists in means for slitting the web into sections at a plurality of closely adjacent points between each section, so as to produce a narrow intermediate strip, together with means for rewinding the slitted sections, preferably under compression, side by side upon a common shaft.

Other features of construction will appear as the specification proceeds.

In the accompanying drawings the invention is embodied in a concrete and preferred form, but changes of construction may be made without departing from the legitimate and intended scope of the invention as set forth in the appended claims.

In said drawings,

Figure 1 is a vertical sectional view through a machine embodying the invention. Fig. 2 is an end elevation, partly broken away and in section of the machine shown in Fig. 1. Fig. 3 is a side elevation of the double cutter member mounted in a single holder employed in the machine. Fig. 4 is a plan view of Fig. 3. Fig. 5 is a side view of the cutter removed from its holder. Figs. 6 and 7 are detail views of the stripper employed in the machine.

Similar characters of reference indicate corresponding parts in the several views.

The invention as here disclosed is embodied in a machine of the so-called "surface rewind" type of a well known construction in which the web 8 passes from the roll 9 over the guides 10, to the backing roll 11 where it is severed by the cutters 12, after which the slitted sections are all rewound side by side into coils 15 on a mandrel or shaft 13 common to all the coils by means of the backing roll 11 and rewinding roll 14.

16 is a pressure roller bearing with equal force on all the coils in a well known manner.

The backing roll 11 is preferably provided with a glass hardened surface, and harder than the blunt cutter members 12, so that the latter will not indent or cut into the surface of the backing roll.

By the above means the web is severed without being distorted out of the plane of severance or laterally and is rewound with an equal pull on all the web sections laterally at the point of severance.

It is unnecessary to enter into a detailed description of the organization of the machine and of the various instrumentalities whereby motion is imparted to the different elements comprising the machine, since these features are well known in the art, and reference will only be had to such parts of the machine which comprise the novel features thereof.

16^a indicate a series of holders which rest in grooves on the spacing member 17 carried by the bar 18. Each holder 16^a is provided at its end with a spring 19 which bears against the underside of the abutment 20 and is held thereagainst by means of the screw 21. The abutment 20 is adjustable in the slot 22 of the framework, and when adjusted to the proper position can be secured in place by the screw 23. By adjust-

ing the screw 21 the tension of the spring 19 may be varied so that each holder 16^a is held under tension with individually adjustable pressure.

5 The holder 16^a is provided with the cheeks 24 having slots 25 in which is seated the arbor 26 held against rotation by means of the ribs 27 engaging in suitable grooves in the arbor. The cutter member 12 is provided with a central aperture 28 having a ball bearing 29 and is rotatably mounted on the arbor 26 between the cheeks 24. The cutter member 12 may be in one or two parts and is provided with two cutting or cleaving faces, or with a double cutting or cleaving face 30, which coact with the backing member 11. By this means the web is severed at a plurality of closely adjacent points between each section, thereby producing a narrow intermediate strip. This intermediate strip may be rewound with the web sections, in which case the coils have two chances to be separated when knocked apart. Or the said intermediate strips may be removed from the machine without being rewound. Any suitable device may be utilized for this purpose, but preferably I employ stripper members engaging, or closely adjacent to, the surface of the backing member 11. As here shown these stripper members comprise a support 31 adapted to be clamped to the transverse bar 32 of the machine by means of the set screw 33. The support is provided with a forwardly extending stripper finger 34 which bears against the member 11 in the plane of the cutting member 12, and with a rearwardly extending guide 35 located below the stripper finger and separated therefrom by a space or slot 36 through which the intermediate strip passes and is thereby conveyed out of the machine.

What is claimed, is:

1. A slitting and rewinding machine comprising: means for slitting a web into sections by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce relatively wide sections and a relatively narrow intermediate strip, and means for rewinding the slitted sections side by side upon a common shaft.

2. A slitting and rewinding machine comprising: means for slitting a web into sections without distorting it out of the plane of severance by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce relatively wide sections and narrow intermediate strips, and means for rewinding the slitted sections side by side upon a common shaft.

3. A slitting and rewinding machine comprising: means for slitting a web into sections by severing the web at a plurality of closely adjacent points between each pair of

sections, so as to produce relatively wide sections and a narrow intermediate strip, means for rewinding the slitted sections side by side upon a common shaft, and means for preventing the intermediate strip from being rewound with the slitted sections.

4. A slitting and rewinding machine comprising: means for slitting a web into sections without distorting it out of the plane of severance by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce relatively wide sections and a relatively narrow intermediate strip, means for rewinding the slitted sections side by side upon a common shaft, and means for preventing the intermediate strip from being rewound with the slitted sections.

5. A slitting and rewinding machine comprising: means for slitting a web into sections by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce relatively wide sections and a relatively narrow intermediate strip, and means for rewinding the slitted sections under compression side by side upon a common shaft.

6. A slitting and rewinding machine comprising: means for slitting a web into sections without distorting it out of the plane of severance by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce relatively wide sections and a relatively narrow intermediate strip, and means for rewinding the slitted sections under compression side by side upon a common shaft.

7. A slitting and rewinding machine comprising: means for slitting a web into sections by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce relatively wide sections and a relatively narrow intermediate strip, means for rewinding the slitted sections under compression side by side upon a common shaft, and means for preventing the intermediate strip from being rewound with the slitted sections.

8. A slitting and rewinding machine comprising: means for slitting a web into sections without distorting it out of the plane of severance by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce relatively wide sections and relatively narrow intermediate strips, means for rewinding the slitted sections under compression side by side upon a common shaft, and means for preventing the intermediate strips from being rewound with the slitted sections.

9. In a slitting machine, a plurality of members having cutting surfaces thereon arranged in groups of two, a movable holder mounting each group of said cutting members, adjustable means for exerting tension

against each holder, and means with which said cutting surfaces coact.

10. In a cutter member, a slitting machine, a plurality of movable holders, cutting surfaces mounted in each holder in groups of two, tension means acting against each holder for holding said cutting surfaces in engagement with said member, and means for independently adjusting the tension exerted upon each holder.

11. In a slitting and rewinding machine, rewinding means, a backing roll, a cutting member having a plurality of cutting surfaces acting against said backing roll, a stripper finger coacting with said backing roll in the plane of the cutting member, a guide extending in a direction opposite from that of the stripper finger and located underneath the same and spaced therefrom whereby the intermediate strip between the sections will be conveyed out of the machine, and means for rewinding the sections.

12. In a slitting machine, a stripper member comprising a forwardly extending stripper finger and rearwardly extending guide member located underneath the stripper finger and spaced therefrom.

13. In combination, a cutter member, a cutting member adapted to engage with the cutter member and having a plurality of cutting surfaces formed thereon, means for feeding a web between said cutter member and said cutting surfaces, and a stripper finger engaging with the cutter member and arranged in the path of the strip severed between the cutting surfaces of the cutting member for directing said strip in another path from the remaining severed sections.

14. In a machine, a cutter member, a cutting member adapted to engage with the cutter member and having a plurality of cutting surfaces formed thereon, means for

feeding a web between said cutter member and said cutting surfaces, a stripper finger engaging with the cutter member and arranged in the path of the strip severed between the cutting surfaces of the cutting member for directing said strip in another path from the remaining severed sections, and guide means arranged to coact with said stripper finger and receiving said strip therefrom for directing the same out of the machine.

15. A slitting and rewinding machine comprising: a cutting member having a plurality of cutting surfaces for slitting a web into sections by severing the web at a plurality of closely adjacent points between each pair of sections so as to produce a relatively narrow intermediate strip between each section, and means for rewinding the slitted sections under compression side by side upon a common shaft.

16. A slitting and rewinding machine comprising: a cutting member having a plurality of cutting surfaces for slitting a web into sections by severing a web at a plurality of closely adjacent points between each pair of sections so as to produce a relatively narrow intermediate strip between each section, means for rewinding the slitted sections under compression side by side upon a common shaft in the plane of their lines of severance, and means for preventing the intermediate strip from being rewound with said slitted sections.

Signed at the borough of Brooklyn, in the county of Kings, city and State of New York this 25th day of February A. D. 1914.

JAMES A. CAMERON.

GUSTAF BIRGER BIRCH.

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