Dec. 3, 1929. J. A. CAMERON ET AL 1,738,353

SLITTING MACHINE

Filed Dec. 3, 1923 7 Sheets-Sheet 1

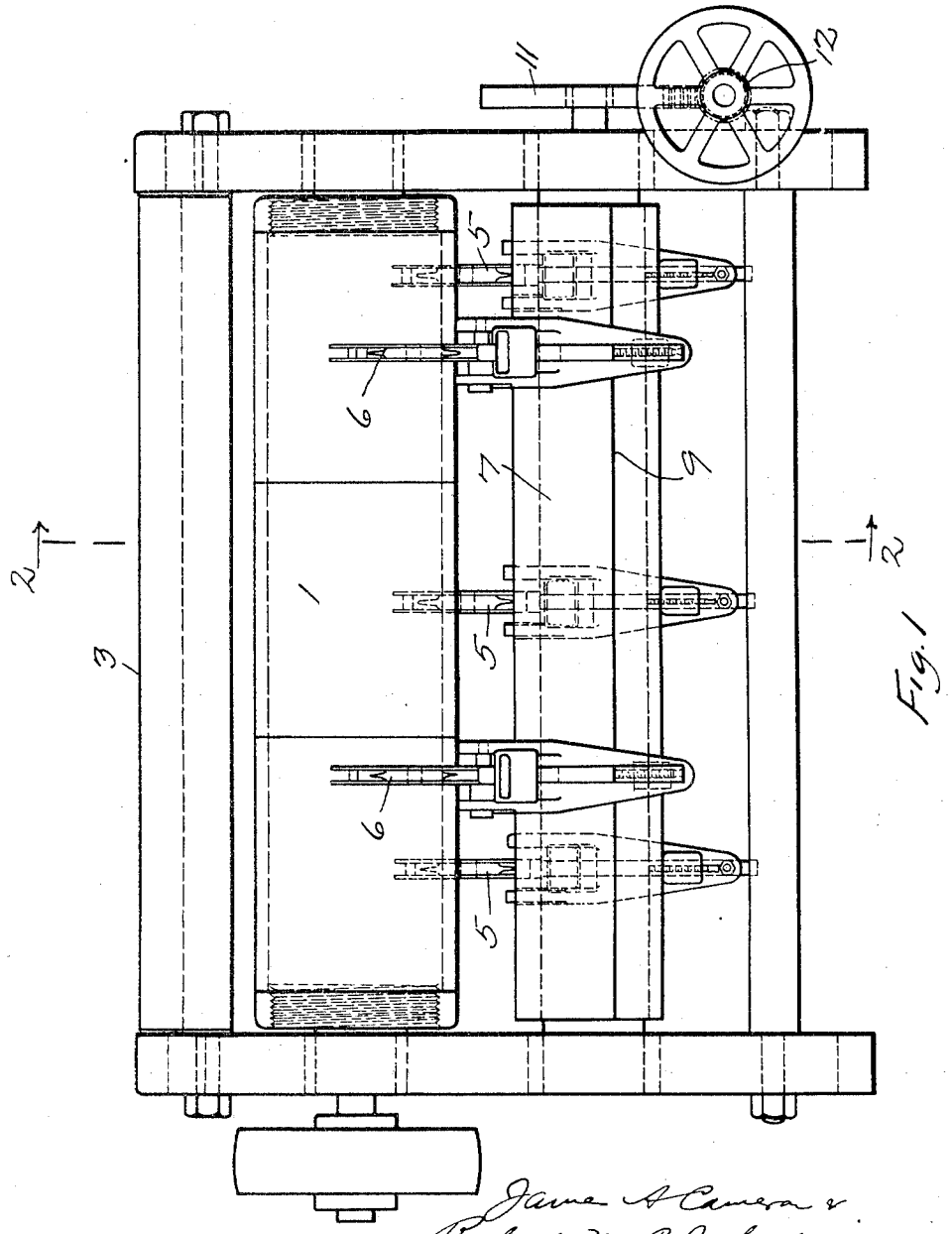


Fig. 1

James A. Cameron
Robert McC. Johnstone
INVENTORS

BY

Bell & Becker
ATTORNEY.

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SLITTING MACHINE

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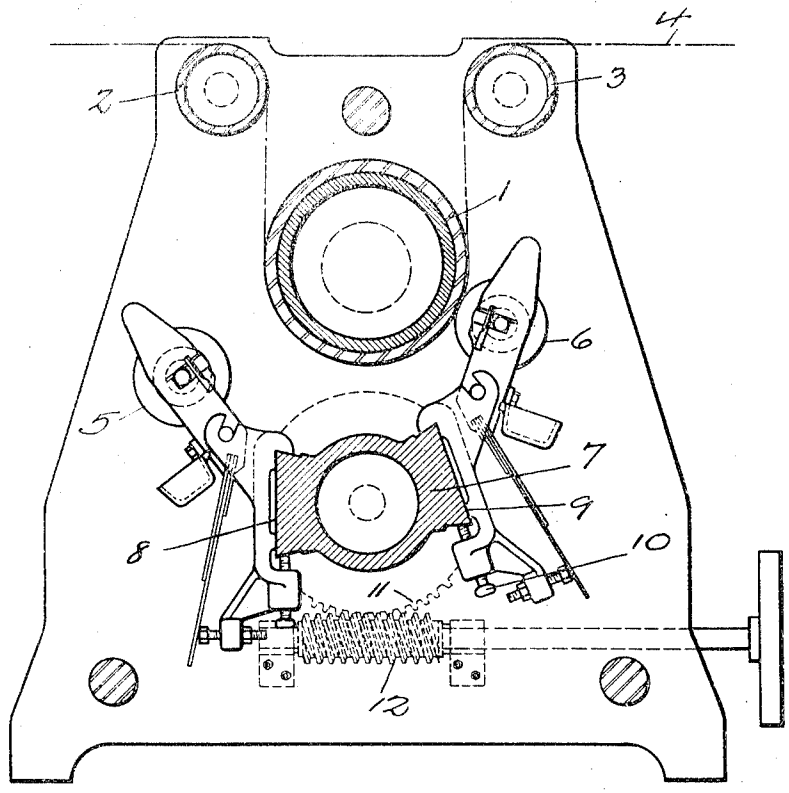


Fig. 2

James A Cameron &
Robert McC Johnstone
INVENTORS

BY

Arthur Becker
ATTORNEY.

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SLITTING MACHINE

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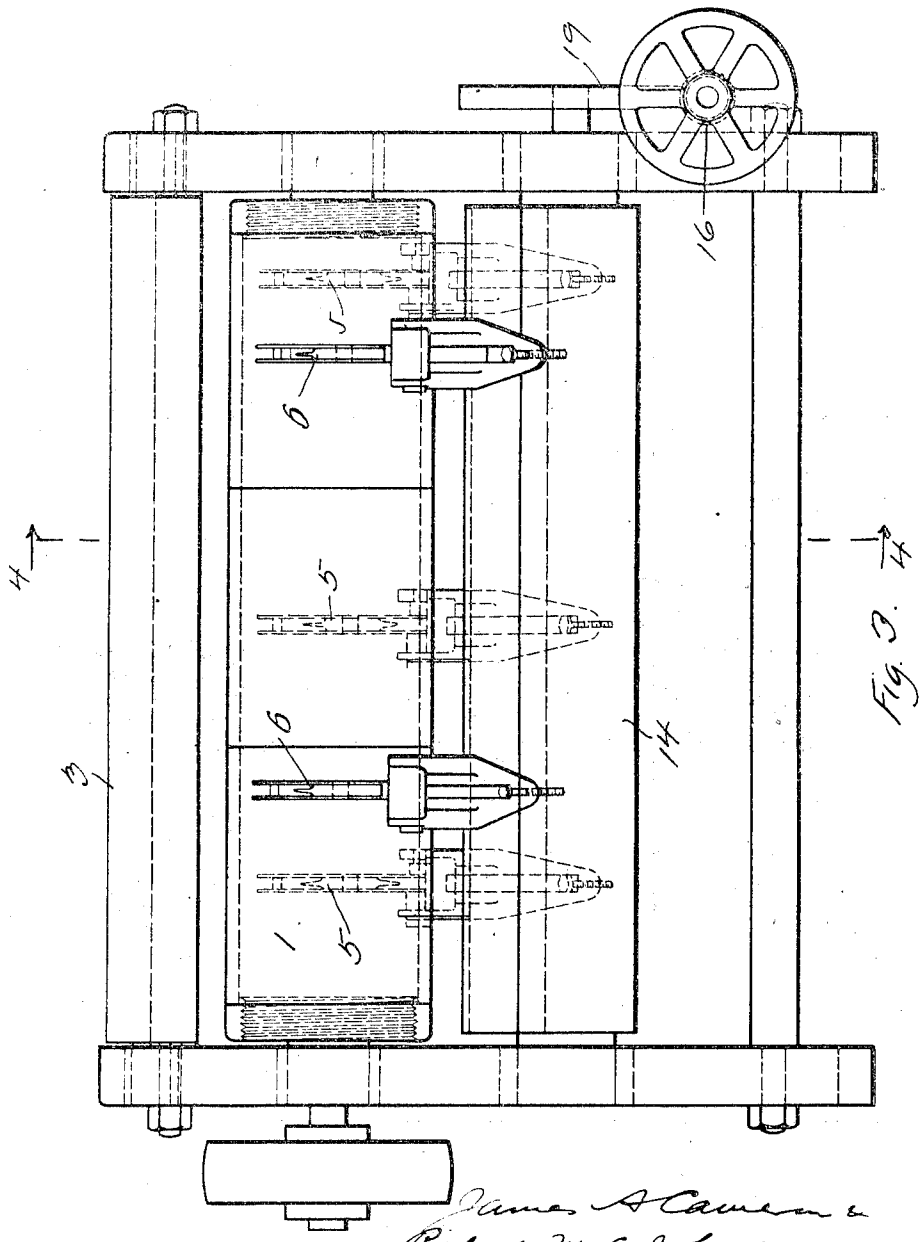


Fig. 3.

James A. Cameron &
Robert McC. Johnstone
INVENTORS

BY

Bell & Becker
ATTORNEY.

Dec. 3, 1929. J. A. CAMERON ET AL 1,738,353

SLITTING MACHINE

Filed Dec. 3, 1923 7 Sheets-Sheet 4

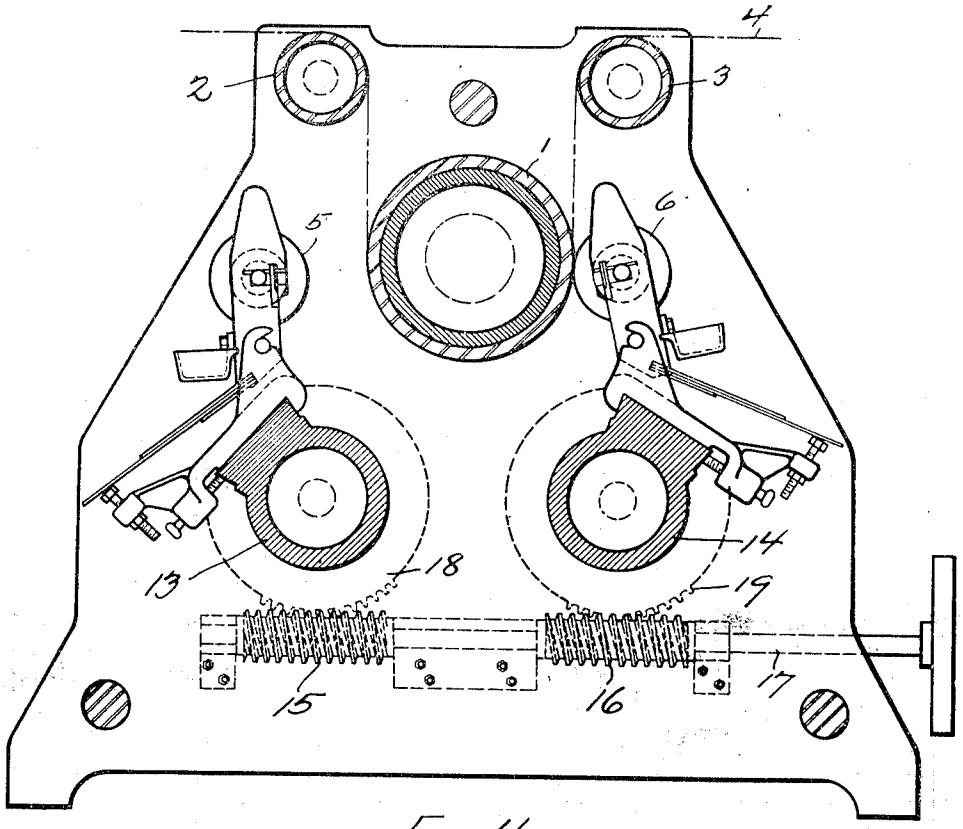


Fig. 4

James A. Cameron &
Robert McC. Johnstone
INVENTORS

BY

Bell Beeton
ATTORNEY.

Dec. 3, 1929. J. A. CAMERON ET AL 1,738,353

SLITTING MACHINE

Filed Dec. 3, 1923 7 Sheets-Sheet 5

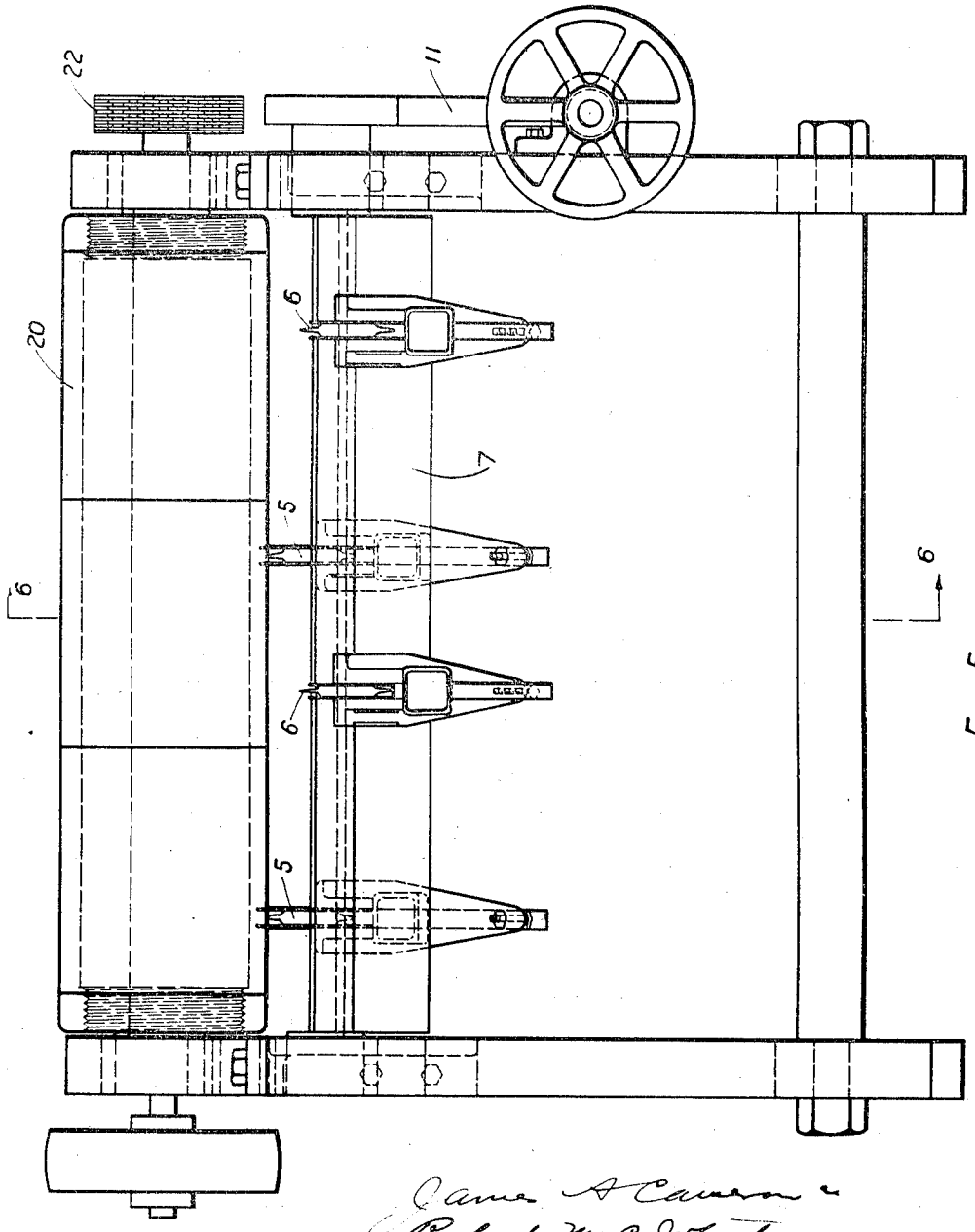


Fig. 5

James A. Cameron &
Robert McC. Johnstone
INVENTORS

BY

ATTORNEY.

Dec. 3, 1929. J. A. CAMERON ET AL. 1,738,353

SLITTING MACHINE

Filed Dec. 3, 1923 7 Sheets-Sheet 6

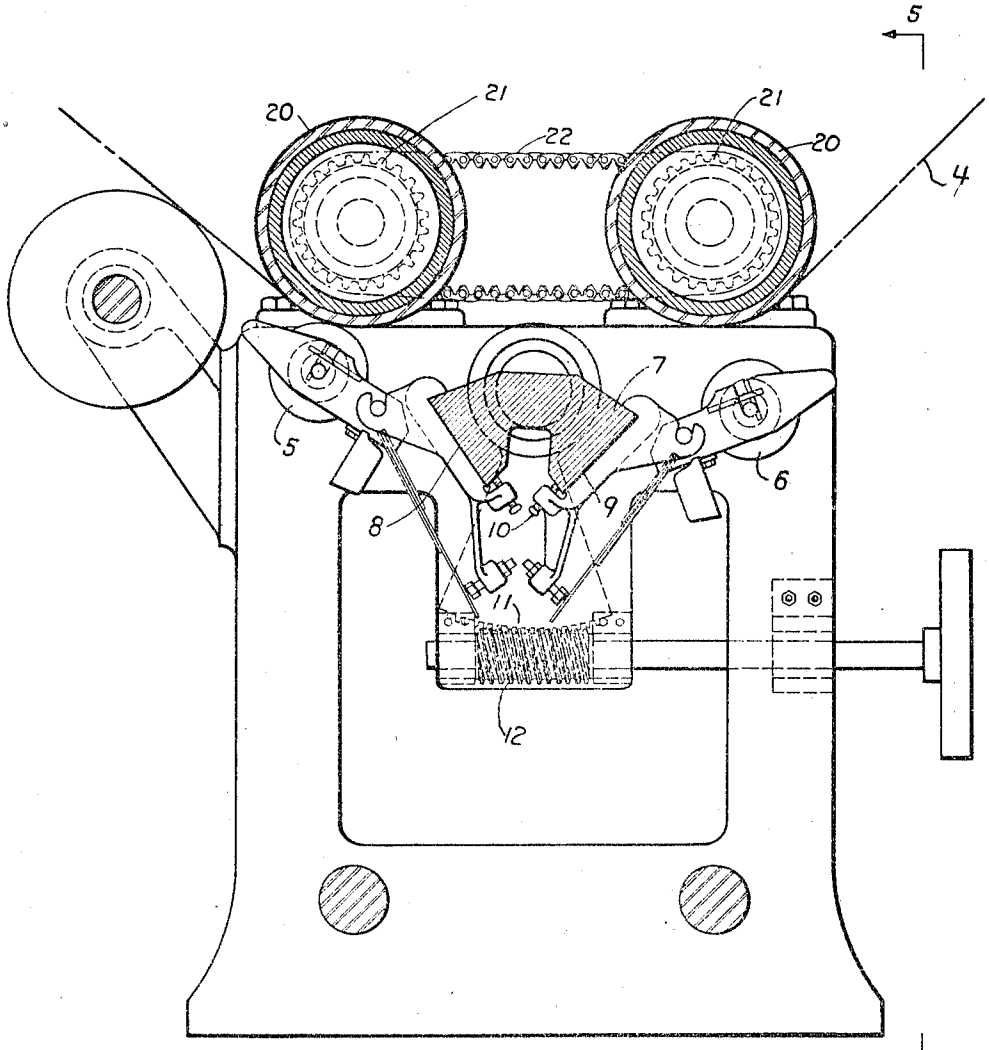


Fig. 6

James A. Cameron
Robert McC. Johnstone
INVENTORS

BY

Wilson Pearson
ATTORNEY.

Dec. 3, 1929. J. A. CAMERON ET AL 1,738,353

SLITTING MACHINE

Filed Dec. 3, 1923 7 Sheets-Sheet 7

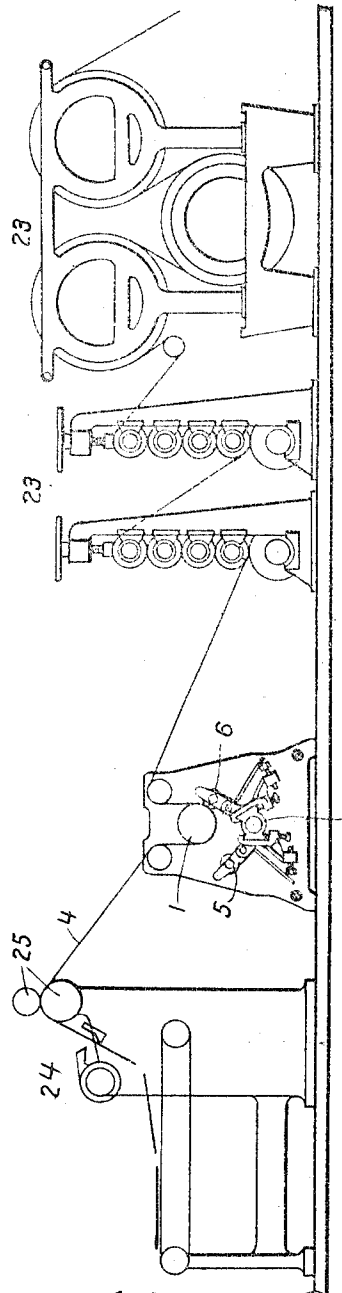


Fig. 7

James A. Cameron & Robert McCutcheon
INVENTORS

BY

ATTORNEY.

Patented Dec. 3, 1929 1,738,353

UNITED STATES PATENT OFFICE

JAMES A. CAMERON, OF BROOKLYN, NEW YORK, AND ROBERT McC. JOHNSTONE, OF ROSELLE PARK, NEW JERSEY, ASSIGNORS TO CAMERON MACHINE COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK

SLITTING MACHINE

Application filed December 3, 1923. Serial No. 678,332.

This invention relates generally to slitting machines, and has for its main object and feature the provision of a plurality of alternate sets of slitting devices, the members of each set being on opposite sides of a flowing web, together with means for adjusting the members of one set while the members of another set are acting on a flowing web and the structure being adjustable to change from one set of slitting devices to another set without breaking the continuity of the web or stopping its flow. In this manner, the slitting action of the device may be changed without the necessity of re-threading the web and without an accumulation of useless web as would inevitably happen when the slitting machine is coupled with a paper or board-making machine because it is not desirable to stop the operation of the paper or board-making machine merely because different widths of slitting sections are required. This invention, while it may be employed in any slitting or slitting and winding machine has been found particularly useful in board mills where it may be interposed between the board or paper making machine and the sheeter.

In the accompanying drawings of this application, the invention is disclosed in several concrete and preferred forms and in applications for patent Ser. Nos. 678,333 and 678,334 filed December 3, 1923, other preferred and subsidiary forms are disclosed.

In said drawings:

Fig. 1 is a side elevation of a slitting machine embodying one form of the invention.

Fig. 2 is a transverse vertical sectional view on the plane of line 2—2 of Fig. 1.

Fig. 3 is a side elevation of a machine embodying a modified form of the invention.

Fig. 4 is a transverse vertical sectional view on the plane of line 4—4 of Fig. 3.

Fig. 5 is a side elevation of a machine embodying a second modification of the invention.

Fig. 6 is a transverse vertical sectional view on the plane of line 6—6 of Fig. 5.

Fig. 7 is a diagrammatic view of the board mill, slitter and sheeter.

The slitting means employed may be either of the shear-cut or the score-cut type. If of the shear-cut type, the arrangement may be as illustrated in application Ser. No. 678,334 filed December 3, 1923; if of the score cut type, the arrangement may be as illustrated in application Ser. No. 678,333 filed December 3, 1923, or as illustrated in the present application and may consist of one or more backing rollers or smooth faced slitting means, made in accordance with the well-known Cameron practice, and two or more groups of score-cutting elements. Some of the claims of the present application are intended to cover the construction shown in all three applications.

In the exemplification of the invention shown in Figs. 1 and 2, one set of slitting elements consists of backing roller or smooth faced slitting means 1 and a group of score cutters 5 and the other set of slitting elements consists of backing roller 1 and a second group of score cutters 6, the members of each set being on opposite sides of flowing web 4. 2 and 3 are guide rollers for guiding the material. 7 indicates a carrying member mounted to turn and having two surfaces 8 and 9 each of which is adapted to support the cutting members which latter are individually and slidably adjustable in order to obtain different widths of web sections. After a cutter has been adjusted to a desired position, it is secured by means of set-screw 10. It will be understood that by turning the carrying member in one direction one group of cutters will be thrown into operation and the other group out of operation and vice versa. Many means are known for accomplishing the turning movement of a carrying member but in the present instance carrying member 7 has a gear 11 at its end that is actuated by a screw 12.

In the second exemplification of the invention shown in Figs 3 and 4, the slitting elements are the same but instead of one carrying member, two carrying members 13 and 14 are employed. These carrying members are preferably adapted to be moved in unison in opposite directions. Any suitable means, such as links or the like, may be used to couple them together but, preferably, and as herein shown, two screws 15 and 16 are mounted on

the same shaft 17 and each carrying member is provided with a gear 18 and 19 respectively so that the carrying members, by turning shaft 17, are moved in the same directions.

In Figs. 5 and 6 the construction is substantially the same as in Figs. 1 and 2, except that instead of a single backing member two hardened rollers 20 are employed and these are geared together so as to rotate in unison by means of sprockets 21 and chain 22.

In Fig. 7, the slitting machine is shown interposed between the board machine 23 and sheeter 24, the rolls 25 of which act to feed the web through the slitting machine.

In each of the forms shown both groups of cutters may be kept off the drum or drums by turning the screw or screws part way.

The feature of a carrying member mounted to turn and carrying two groups of slitting elements that are spaced circumferentially together with slitting means adapted to co-act with said cutters and means for turning said carrying member to bring either group into proper position with relation to the slitting means is not specifically claimed in this application but is covered in application Ser. No. 678,333, filed December 3, 1923.

The broad idea, disclosed herein, of score-cut slitting means to sever a web into longitudinally independent sections without distorting them out of parallelism together with a feeding device to exert an equal pull on all the sections to thereby advance them in parallelism and severing devices to cut the sections substantially at right angles to their longitudinal advance is not claimed in this application but forms the subject matter of another application filed Nov. 21, 1924, Ser. No. 751,410.

We claim:

1. A slitting machine, for slitting a flowing web, comprising: slitting means consisting of a plurality of groups of score cutters on one side of the web, backing means, against which the score cutters can act, on the other side of the web, means for laterally adjusting one group of score cutters while the other group is slitting the web, and devices for simultaneously adjusting the two groups of cutters so as to bring the first group of cutters into slitting position and the other group out of slitting position without breaking the continuity of the web.

2. A slitting machine, for slitting a flowing web, comprising: slitting means consisting of a plurality of groups of score cutters on one side of the web, backing means, against which the score cutters can act, on the other side of the web, means for laterally adjusting one group of score cutters while the other group is slitting the web, and devices for simultaneously adjusting the two groups of cutters so as to bring the first group of cutters into slitting position and the other group out of slitting position without stopping the flow of the web.

3. A slitting machine comprising: a main member, means for guiding material to be slitted over said member, two sets of cutting members to alternately engage the main member at different points circumferentially thereof, and means for simultaneously moving one set away from and the other set toward the main member.

4. A slitting machine comprising: a main member, means for guiding material to be slitted over said member, two sets of cutting members to alternately engage the main member at different points circumferentially thereof, means for individually adjusting the cutting members of each set longitudinally of the main member independently of those of the other set, and means for simultaneously moving one set away from and the other set toward the main member.

5. A slitting machine including: a plurality of alternate sets of slitting devices, the members of each set being on opposite sides of a flowing web, means for effecting an adjustable relation, laterally, of the members of one set to slit the web into sections of predetermined width while members of another set are acting on the flowing web to slit it, and devices for moving the parts to change the slitting action from one set of slitting devices to another at will without breaking the continuity of the web and while retaining the members of each set immovably in their mutually adjusted relation laterally.

6. A slitting machine including: a plurality of alternate sets of score-cut slitting devices, the members of each set being on opposite sides of a flowing web, means for effecting an adjustable relation, laterally, of the members of one set to slit the web into sections of predetermined width while members of another set are acting on the flowing web to slit it, and devices for moving the parts to change the slitting action from one set of slitting devices to another at will without breaking the continuity of the web and while retaining the members of each set immovably in their mutually adjusted relation laterally.

7. A slitting machine comprising: a main member, means for guiding material to be slitted over said member, two sets of cutting members to alternately engage the main member at different points circumferentially thereof, two carrier members, mounted to rock on different centers one for each set of cutting members, and means for simultaneously moving the two carrier members one in a direction toward and the other in a direction away from the main member.

8. The combination with means to uninterruptedly supply a web of flexible material and transverse severing means to cut slitted sections into sheets, of slitting means, interposed between the supply and severing means, in-

cluding a plurality of alternate sets of slitting devices, the members of each set being on opposite sides of the flowing web, means for effecting an adjustable relation, laterally, of the members of one set to slit the web into sections of predetermined width while members of another set are acting on the flowing web to slit it, and devices for moving the parts to change the slitting action from one set of slitting devices to another at will without interrupting the flow or breaking the continuity of the web and while retaining the members of each set immovably in their mutually adjusted relation laterally.

Signed at New York city and the borough of Brooklyn county of Kings and State of New York, this 28day of November, 1923.

JAMES A. CAMERON.
ROBERT McC. JOHNSTONE.