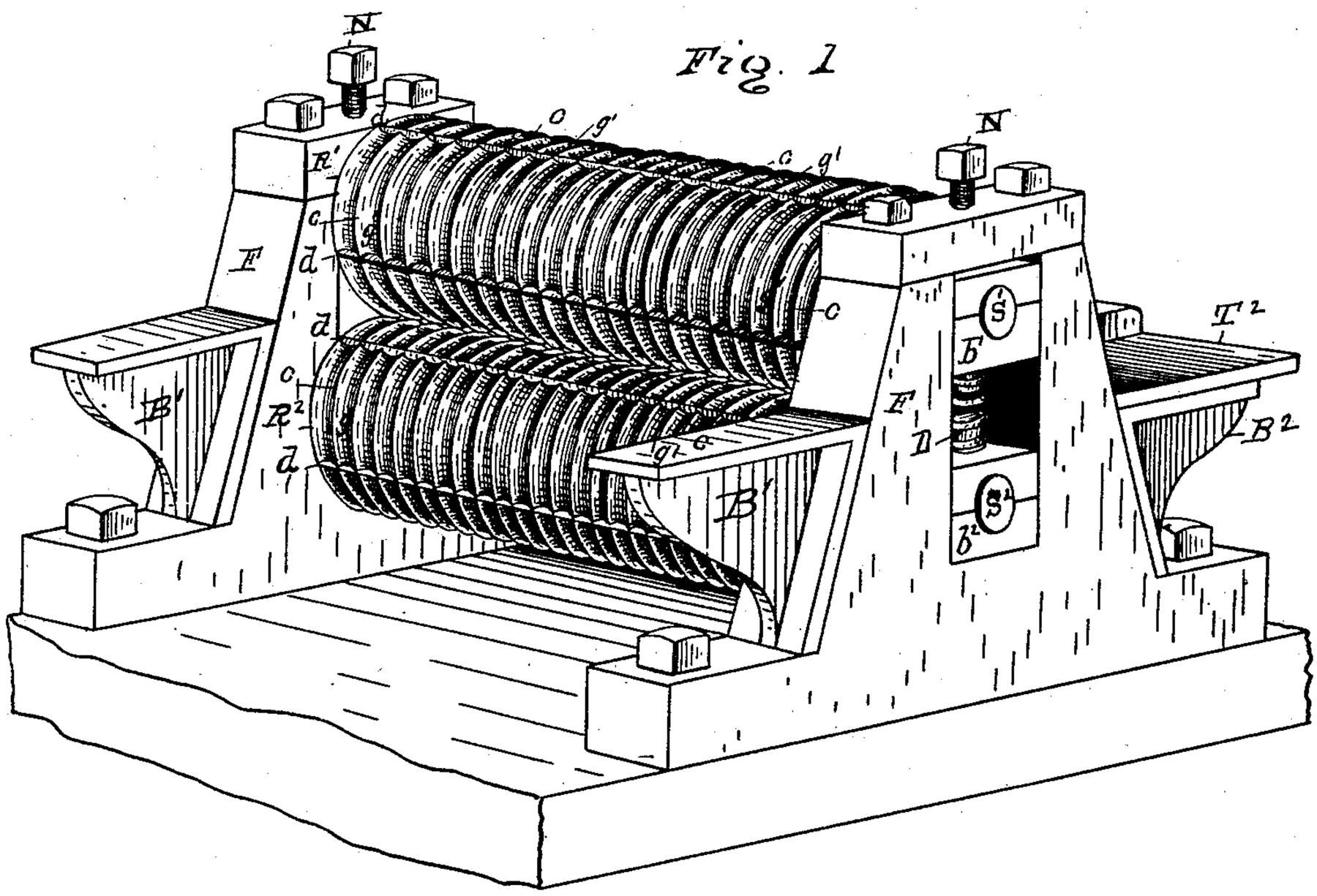
(No Model.) 2 Sheets—Sheet 1.

G. E. NORRIS & W. E. HAGAN.

MATCH MAKING MACHINE.

No. 336,424. Patented Feb. 16, 1886.

Fig. 1



WITNESSES:

Stanley M. Holden.

Charles S. Brimhall

George E. Norris

William E. Hagan

INVENTORS

BY

W. E. Hagan

ATTORNEY

(No Model.) 2 Sheets—Sheet 2.

G. E. NORRIS & W. E. HAGAN.

MATCH MAKING MACHINE.

No. 336,424. Patented Feb. 16, 1886.

Fig. 2

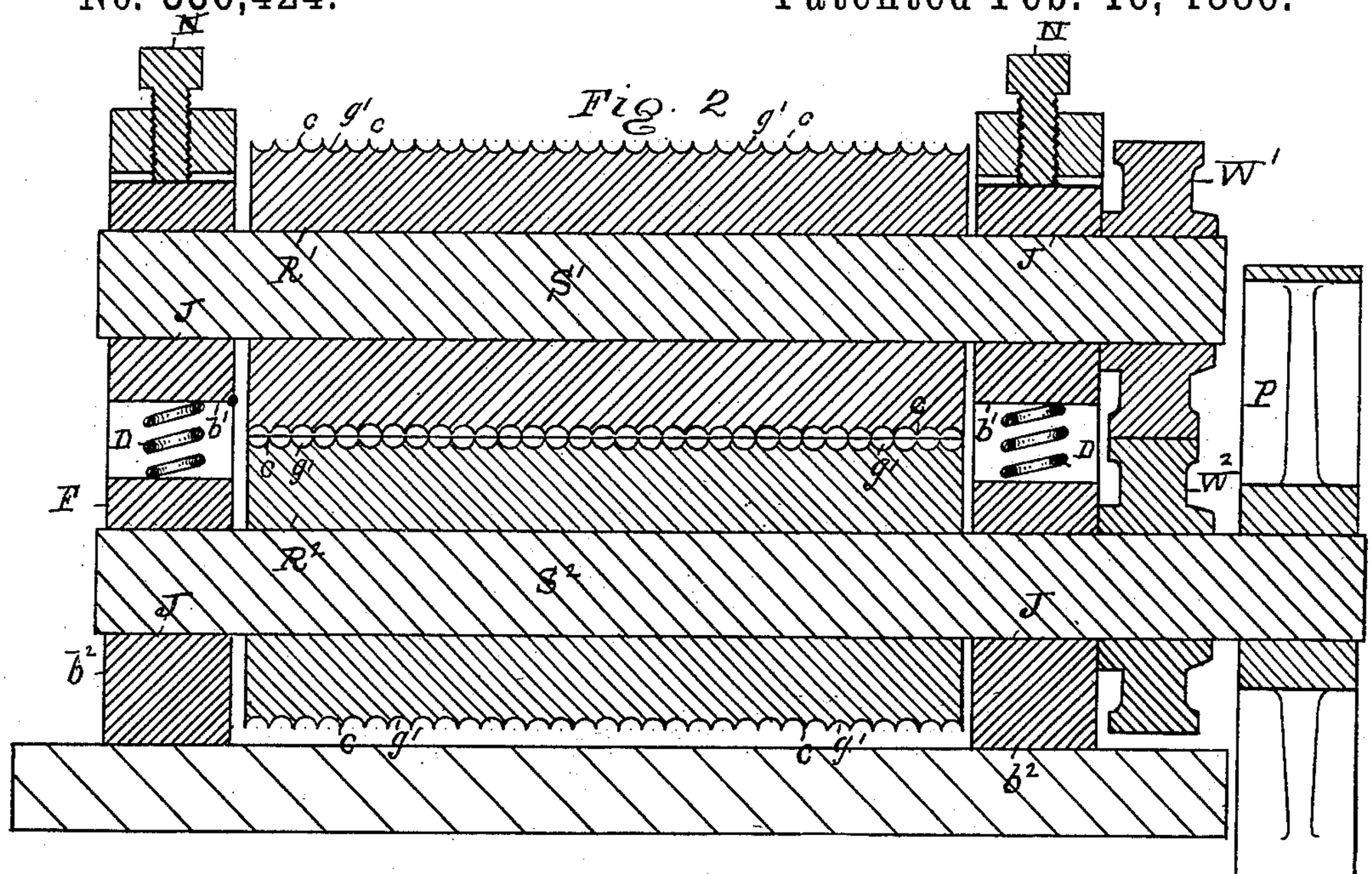
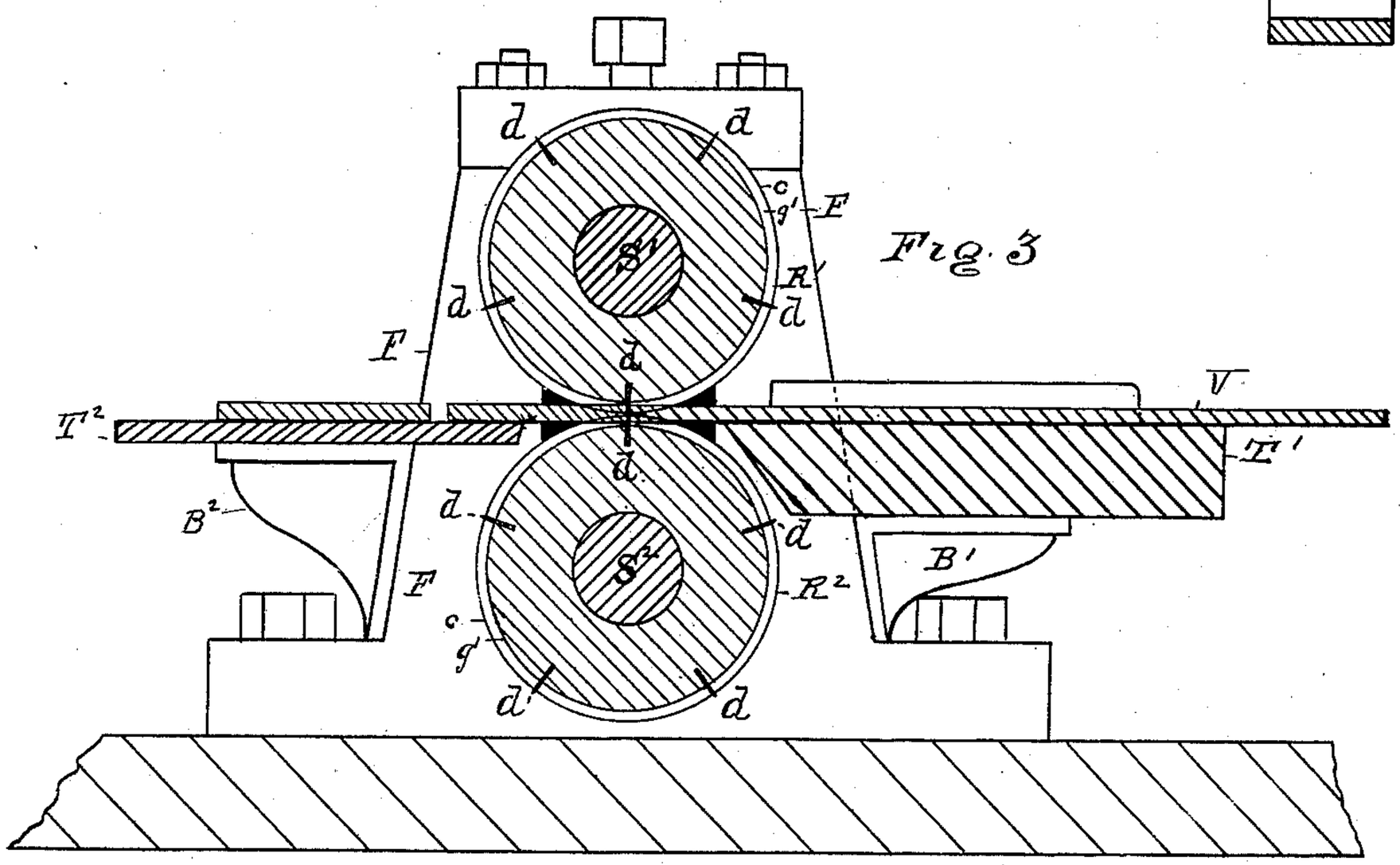


Fig. 3



WITNESSES:

Stanley W. Holden.

Charles S. Bumstead

INVENTORS

George E. Norris

William E. Hagan

BY

W. E. Hagan

ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE E. NORRIS AND WILLIAM E. HAGAN, OF TROY, NEW YORK, ASSIGNORS TO THE CITIZENS MATCH COMPANY, OF SAME PLACE.

MATCH-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 336,424, dated February 16, 1886.

Application filed June 12, 1885. Serial No. 168,472. (No model.)

To all whom it may concern:

Be it known that we, GEORGE E. NORRIS and WILLIAM E. HAGAN, both of the city of Troy, county of Rensselaer, State of New York, have jointly invented a new and useful Improvement in Match-Machines, of which the following is a specification.

Our invention relates to certain improvements in that class of match-splint machines wherein the splints are made from a veneer of wood that is drawn between two rollers by the action of the latter, and in which machines the rollers that thus draw in the veneer cut and press the same into a round form.

Our invention consists, as will be more fully detailed hereinafter in connection with its illustration, in the combination, with a feeding and guide platform, of two rollers that are connected by gears to move together, and each of which rollers is constructed with circumferentially-arranged grooves having intermediately-arranged cutting-edges, with the grooves and cutting-edges in each roller made to be vertically coincident, and blade-edges constructed in each of the roller-faces at right angles to the said circumferential grooves and cutting-edges, and parallel to the axes of the rollers, said blades in each roller being arranged to come in cutting contact as the rollers revolve at such distance apart as will sever the splints in proper lengths.

Accompanying this specification, to form a part of it, there are two plates of drawings, containing three figures illustrating our invention, with the same designation of parts by letter-reference used in all of them.

Of these illustrations, Figure 1 shows a perspective of our match-splint machine, with the delivery end and one side turned toward the sight, the delivery-end platform being removed. Fig. 2 shows a section taken longitudinally through the rollers just in advance of the meeting of two of the transversely-arranged blades. Fig. 3 is a vertical central cross-section showing a strip of veneer between the rollers.

The several parts of the mechanism are designated by letter-reference, and the function of the parts is described as follows:

The letters R′ and R² designate rollers, both of the same size, each of which is provided with a shaft, that of the upper roller being designated at S′, and that of the lower roller indicated at S². Each of the shafts journal into the frame F at J, the journal-boxes *b′* of the upper roller-shaft being made adjustable against the journal-boxes *b²* of the lower roller-shaft by means of an intermediate spring, D, and set-screw N.

The letter W² designates a gear-wheel arranged on the lower roller-shaft, S², and W′ a gear-wheel on the upper roller-shaft, S′, and these gear-wheels are of the same size, and are arranged to mesh into each other, so as to move with the same speed.

The letter P designates a pulley on the lower roller-shaft, S², for receiving and communicating power to the latter and the rollers R′ and R².

The letters *g′* designate annular grooves that are formed circumferentially in the cylindrical face of the rollers R′ and R², and *c* cutting-edges arranged in the cylindrical face of the rollers intermediately to the said grooves and parallel thereto, these cutting-edges and grooves in each roller being constructed to be vertically coincident with those in the other roller, so that as the two rollers are rotated the cutting-edges *c* will be constantly in cutting contact, and the grooves *g′* in each roller, where coming together, will press a rounded form into the strings of wood cut from the veneer V.

The letters *d* designate blades arranged in each roller at intervals, so as to come in cutting contact as the rollers are rotated. These blades are arranged at right angles to the grooves *g′* and cutting-edges *c*, and these blades are parallel to the axis of each roller.

The letters B′ indicate brackets that support a feeding and guide table, T′, and the letters B² designate brackets that support a delivery-platform, T², from whence the splints may be deposited into a receptacle or be removed by other mechanism for dipping.

The operation of the parts thus illustrated and described is as follows: A veneer of wood, V, having a width equal to the length of the two rollers R′ and R², is entered between the latter with the grain of the wood running longitudinally to the strip and at right angles to

the cylindrical faces of the rollers. By the action of the rollers this strip is drawn between them to be expelled therefrom, and while passing between them the cutting-edges *c* separate the veneer longitudinally into strings, while the grooves *g'* in each roller at each side of the strings press the latter into a rounded form. While this is being done, the blades *d*, where they come together in cutting contact with the strings at intervals, sever the latter into the proper lengths for matches.

We are well aware that a match-making machine has been made with two rollers separately actuated, each of which was constructed with planing and cutting spurs arranged circumferentially thereon that operated upon the opposite sides of a passing veneer (those of one roller being arranged to operate on the veneer in advance of the other) to slit said veneer and plane the slit portions into a rounded form, with the veneer moved while this was being done by two rollers in advance of and two rollers back of the cutting-rollers, which in sequence so slit and shaped the strings. This, it will be seen, differs from our invention in the fact that we use two rollers arranged to move together, and which rollers cut and press the veneer without planing it, and the rollers which do the cutting and pressing also act to draw in the veneer and expel the splints. As the rollers R' and R², made with the grooves *g'* with coincident cutting-edges *c*, would perform the same office in connection with the feed-platform, whether the blades *d* were used or some other mechanism were employed to cut the strings up into match-lengths, hence we do not limit our invention of the rollers R' and R², made with the circumferentially-arranged cutting-edges *c* and grooves *g'*, to their combination with the blades *d*.

We disclaim herein as an article of manufacture a match-splint produced by pressing from a square form of wood a rounded form of match-splint, the product of this machine being made the subject of another application for a patent made by us and filed in the Patent Office June 1, 1885.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

In a machine for making match-splints, the combination of the guide-platform T', of the rollers R' and R², constructed to be rotated together and with the same speed, and each roller having the coincidently-opposite circumferentially-arranged grooves *g'*, with coincident cutting-edges *c* and cross-cutting blades *d*, substantially in the manner as and for the purposes set forth.

Signed at Troy, New York, this 30th day of May, 1885, and in the presence of the two witnesses whose names are hereto written.

GEO. E. NORRIS.
WILLIAM E. HAGAN.

Witnesses:
CHARLES S. BRINTNALL,
STANLEY M. HOLDEN.