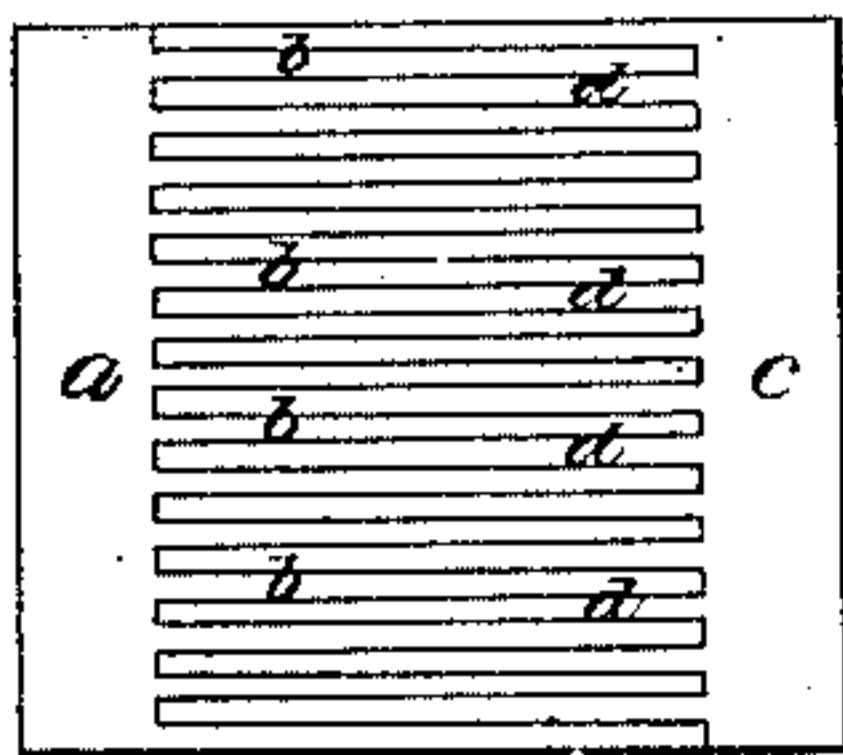


*M. G. Crane,*  
*Making Matches.*

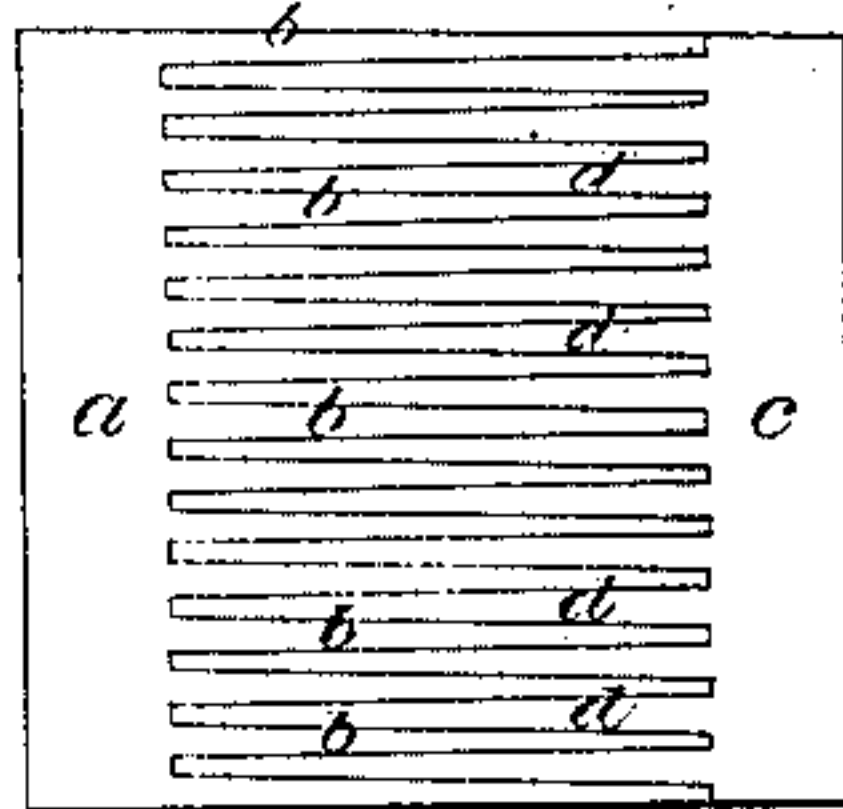
*No. 49,727.*

*Patented Sep. 5, 1865.*

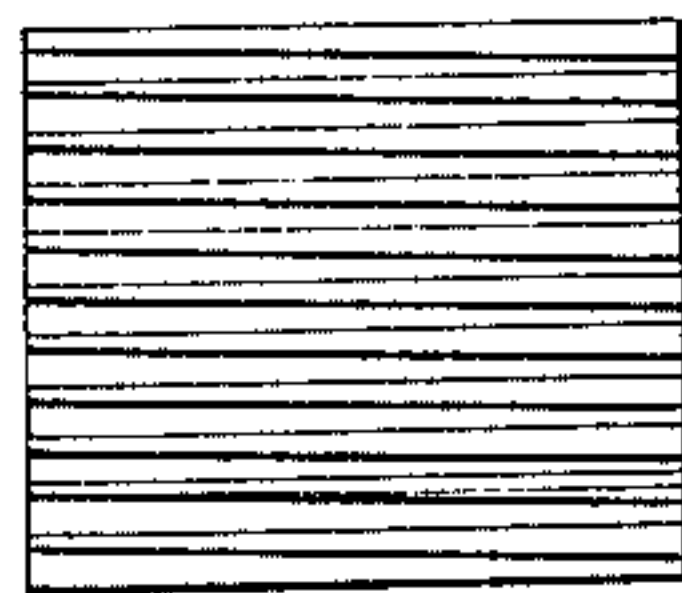
*Fig 1*



*Fig 2*



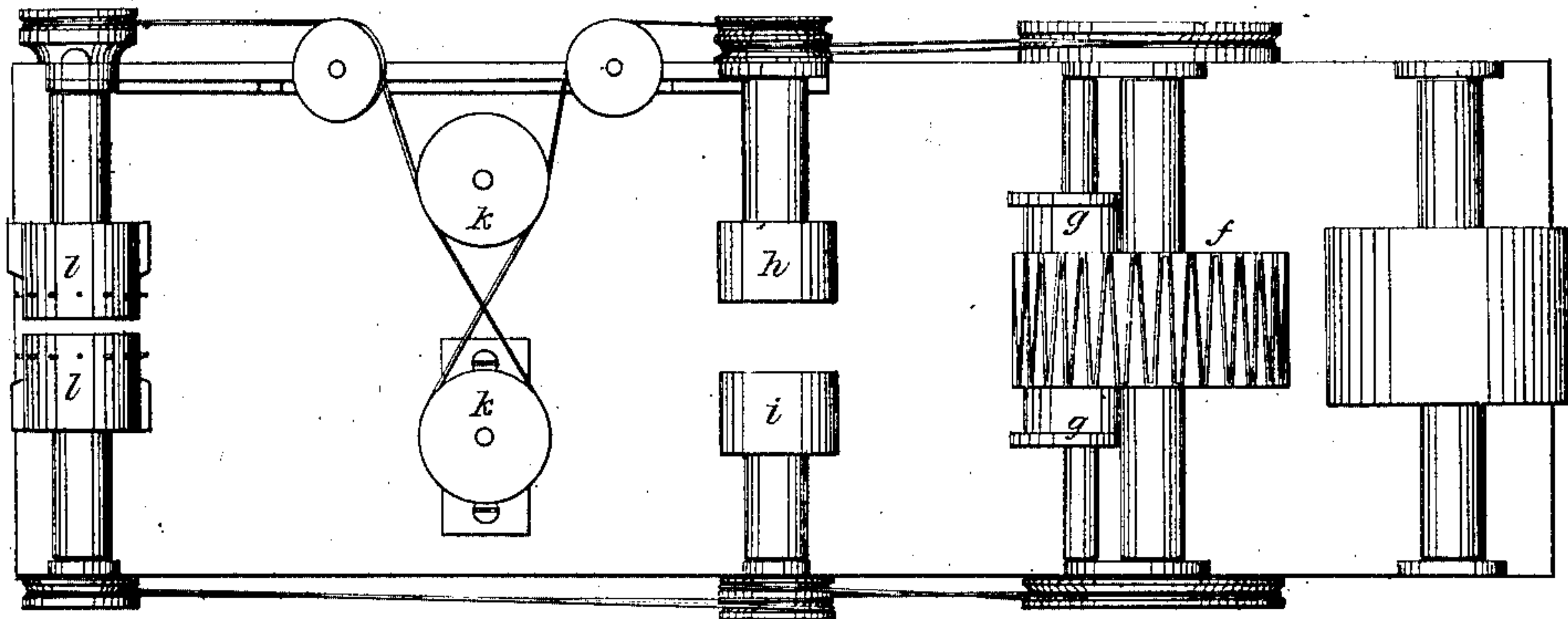
*A*



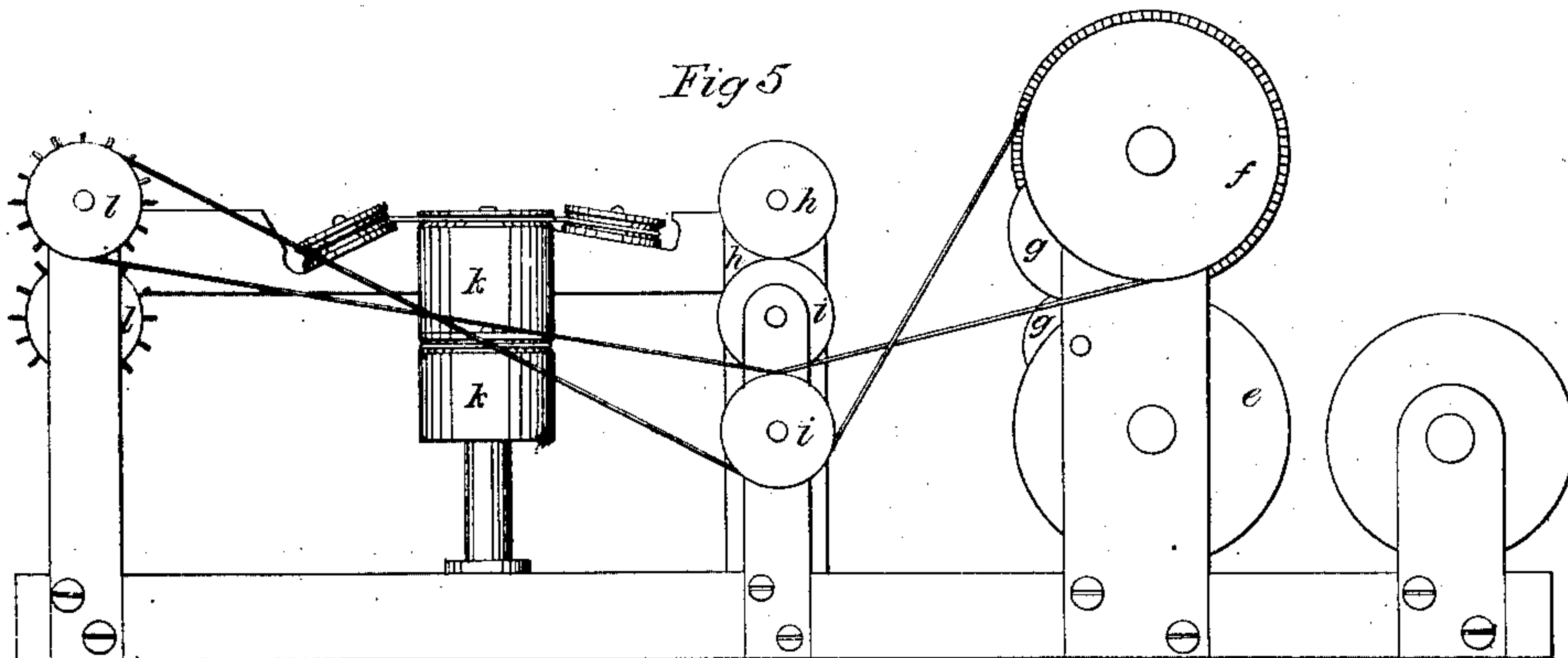
*Fig 3*



*Fig 4*



*Fig 5*



*Witnesses*

*Francis Gould*

*Inventor:*

*Moses G. Crane*  
*by his Atty*  
*W. B. Crosby*

# UNITED STATES PATENT OFFICE.

MOSES G. CRANE, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN MATCH-CARDS.

Specification forming part of Letters Patent No. 49,727, dated September 5, 1865.

*To all whom it may concern:*

Be it known that I, MOSES G. CRANE, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Match-Card; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The common and well-known match-card is made from a thin blank or strip of wood cut to the requisite dimensions and slit by a gang of saws into a row or series of match-sticks of convenient length, these sticks being united by the band or strip left unslit by the saws. Of course, the material removed by the saws is lost, and as the very best stock has to be employed in the manufacture, it is a desideratum to utilize all of said stock, which object is attained by my invention; and this invention consists in match-cards so made that the material removed from each card in the process of cutting the row of match blanks or sticks may form the match-sticks of another card, thereby saving all the stock. This is clearly illustrated by Figures 1 and 2 of the drawings. The black lines in each represent the outline of the blank or strip of wood to be made into cards, while the red lines in each indicate the line of separation, from which it will be readily seen that while the strip *a* and sticks or projections *b* form one card the strip *c* and sticks *d* will form another, and that no material is cut away other than that entering directly into the formation of the two cards.

In Fig. 2 the match-sticks are shown as tapering, the ends to be covered by the igniting composition being the smallest part of each.

The common form of match-cards is shown in Fig. 3, the match-sticks being formed by cutting into the blank or block a series of slits by a gang of saws, as before alluded to.

By inspection of Figs. 1 and 2 it will be seen that by having a blank or block of extra width, enough to form a second end piece, double the number of matches are made from an equal length of blank to what is obtained by the old process.

Figs. 4 and 5 show, respectively, a plan and side elevation of a machine which may be used in the manufacture of the improved cards and in the application of the igniting composition to the ends of the sticks. A thin band or rib-

bon of wood is fed in between the roll *e* and a series of knives or cutters projecting from the surface of a cylinder or drum, *f*. The ribbon is of a width sufficient to form the match-sticks for two cards, and the pieces uniting each set and the cutters are so arranged that as they revolve they divide the ribbon into two sheets, forming the respective match-cards, two flanged rolls or guides, *g*, serving to keep the ribbon in proper position with respect to the cutters. After passing beyond the cutters, one side of the ribbon or strip passes between two rolls, *h h*, and the other between similar rolls, *i i*, placed in a different horizontal position, and this effects the detachment of the two strips of card material from each other. The lower one of each of the sets of rolls *h h* and *i i* may rotate in a pot of sulphur, so that as the points of the match-sticks pass between them they shall be covered with the sulphur, and in their continued feed movement the ends of the match-sticks may pass in contact with rolls *k k*, the surfaces of which shall be provided with phosphoric or other composition by the rubbing of which the match is ignited. Thence the strips pass between feed-rolls *l l*, having cutters which split the strips into card-lengths. This is one method of manufacturing the cards and applying the match composition; but my invention does not contemplate a confinement to this or any other specific mechanism, this being shown and described merely as one means of cutting a ribbon of wood of suitable width into two strips, each of which has a series of projecting match-sticks, and these strips into cords, while it also serves to show a means devised for applying the composition without the process of "dipping." The same mechanism may be employed for cutting match-splints to form matches of a taper form, the ribbon of wood used being of a width corresponding to the length of the cutters in the cylinder *f*, and being cut into splints of the form shown at A.

I claim—

As a new article of manufacture, match-cards having a construction substantially as described.

In witness whereof I have hereunto set my hand this 14th day of June, A. D. 1865.

MOSES G. CRANE.

Witnesses:

F. GOULD,

W. B. GLEASON.