

No. 659,914.

Patented Oct. 16, 1900.

A. R. CLARKE & A. W. RASMUSSEN.

CIRCULAR FOLDING MACHINE.

(Application filed Dec. 28, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

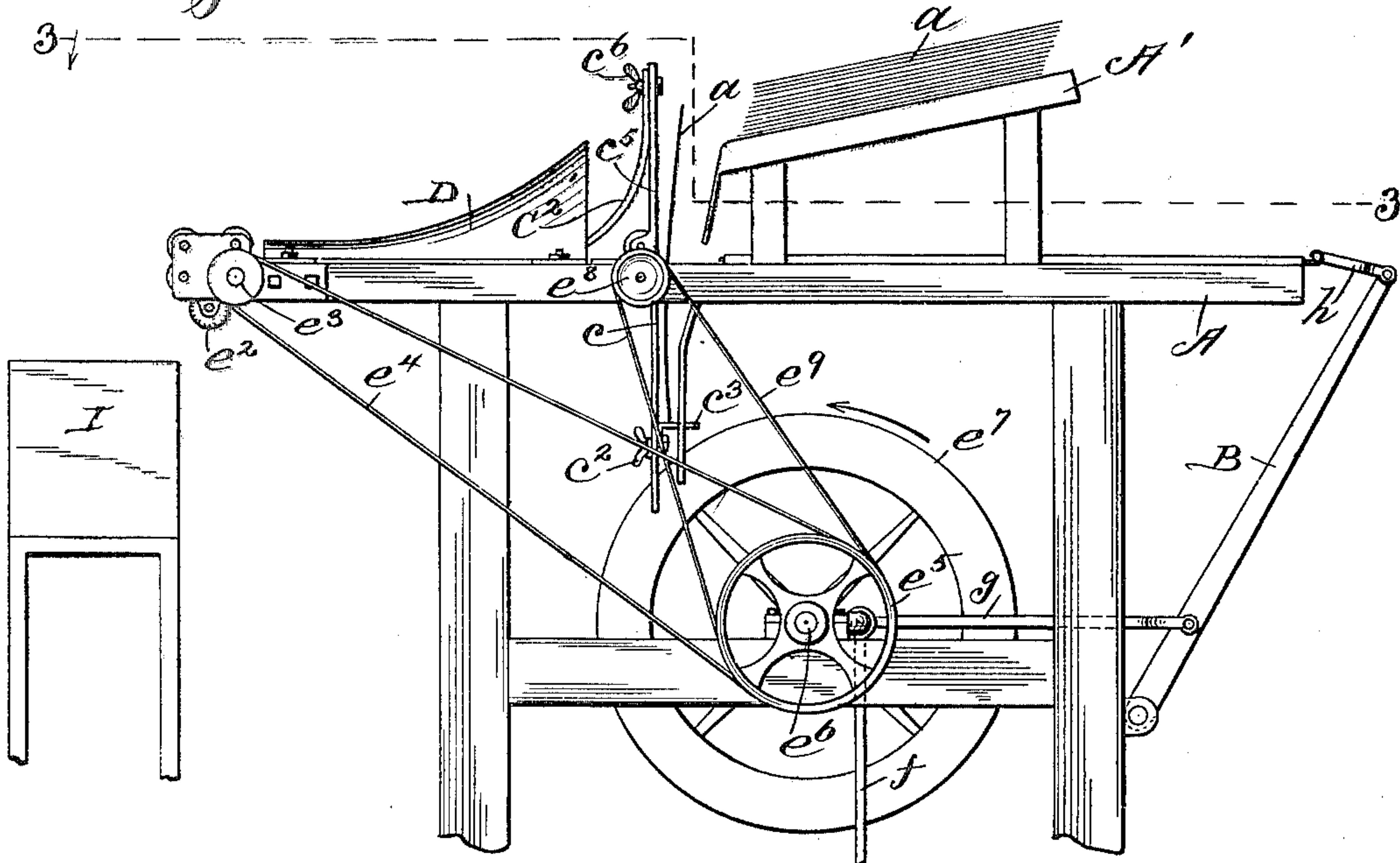
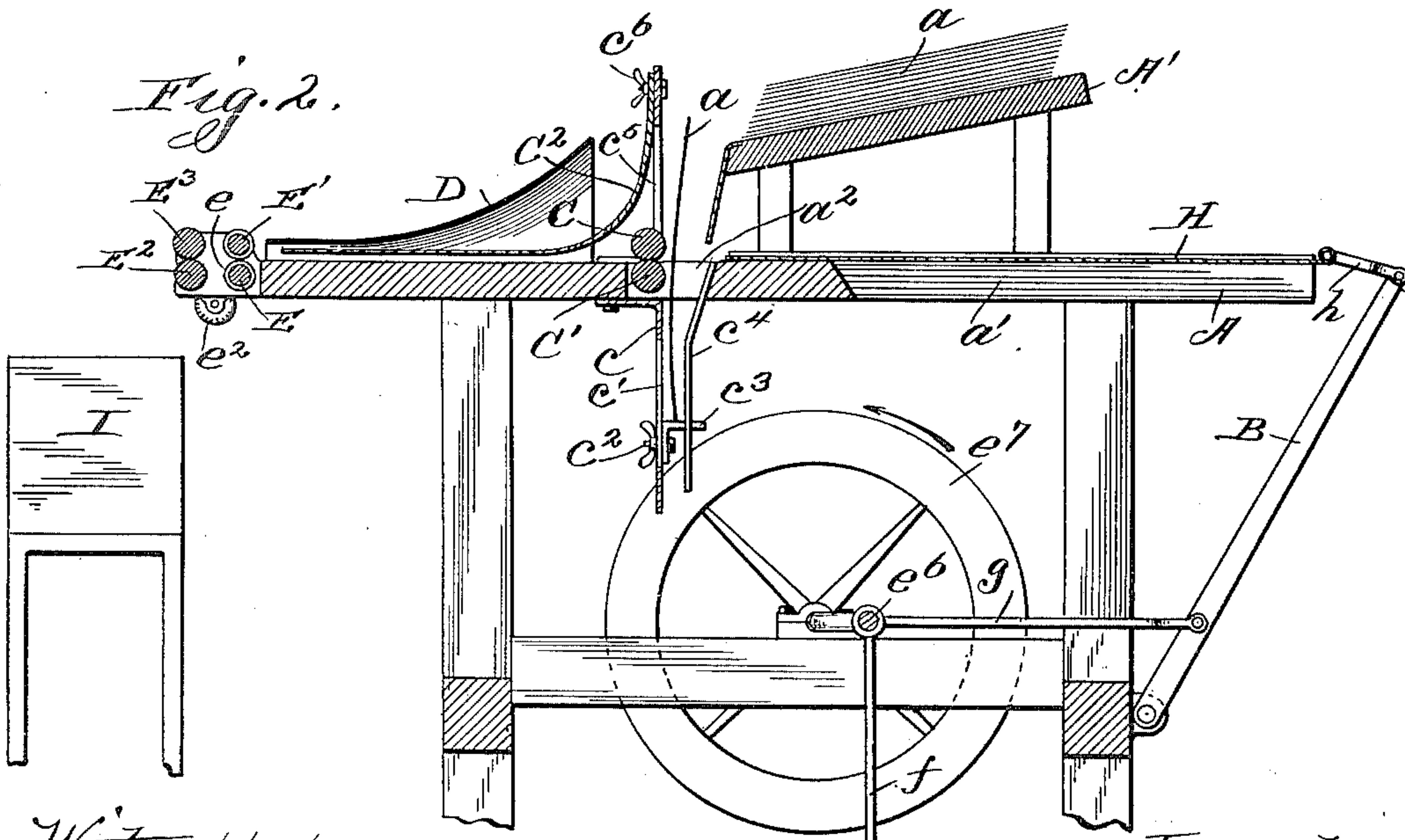


Fig. 2.



Witnesses:
R. J. Jaeger.
A. Gustafson

Inventors:
Arthur R. Clarke
Alfred W. Rasmussen
By Chas. C. Tiltman
Att'y.

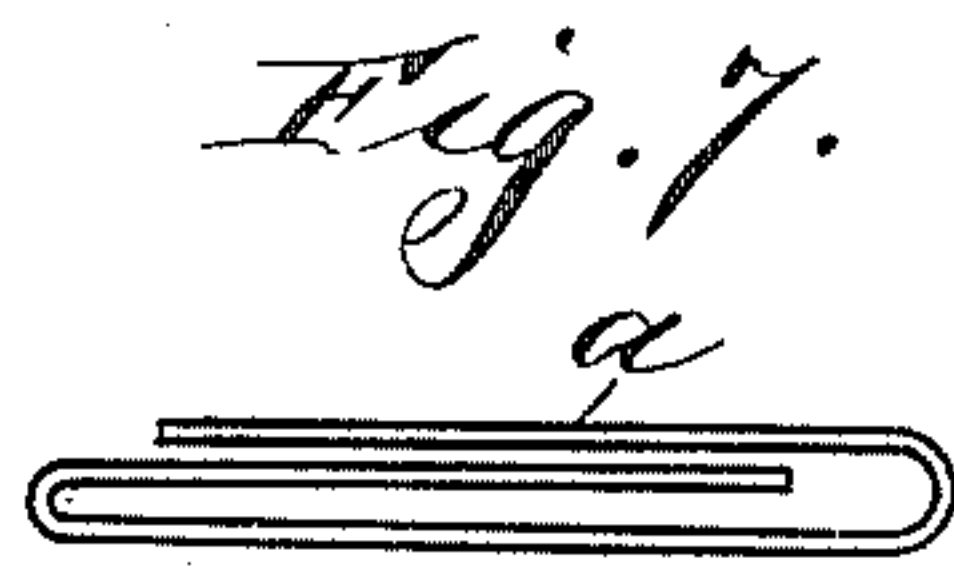
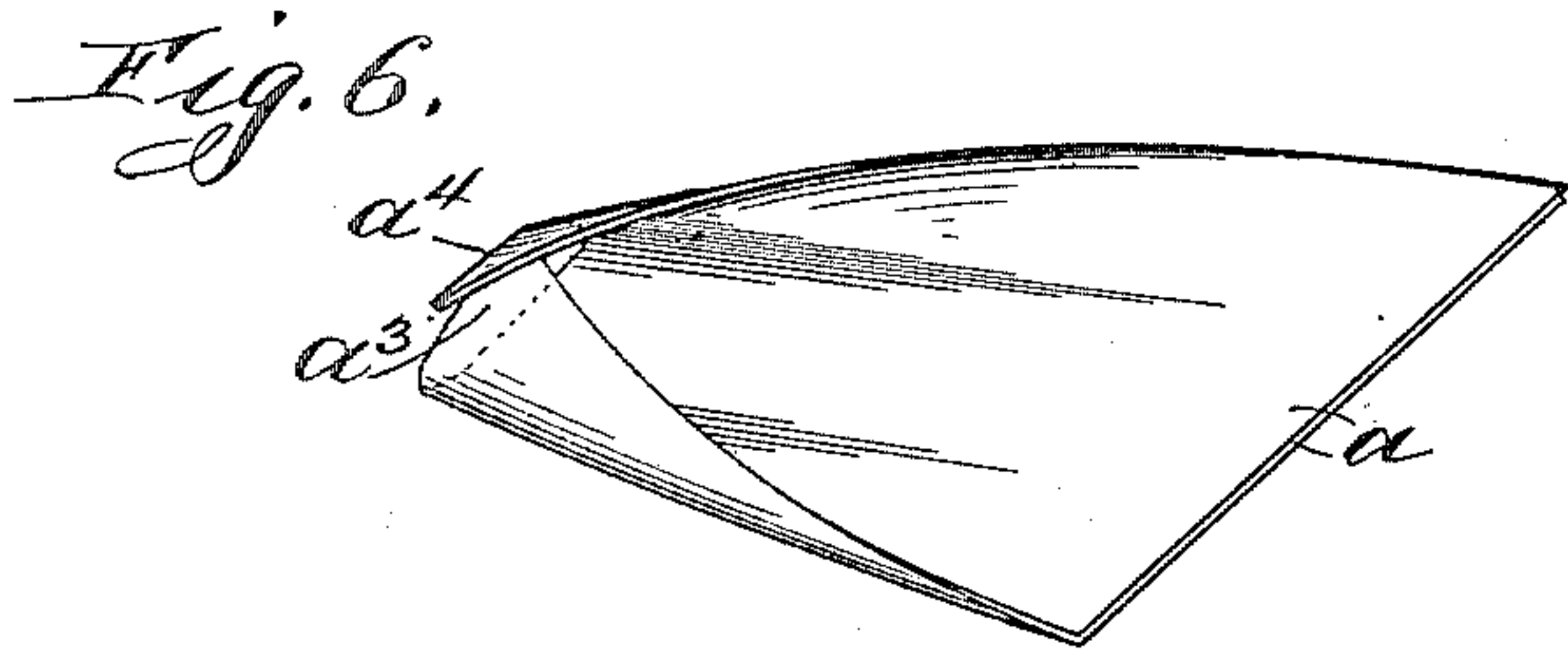
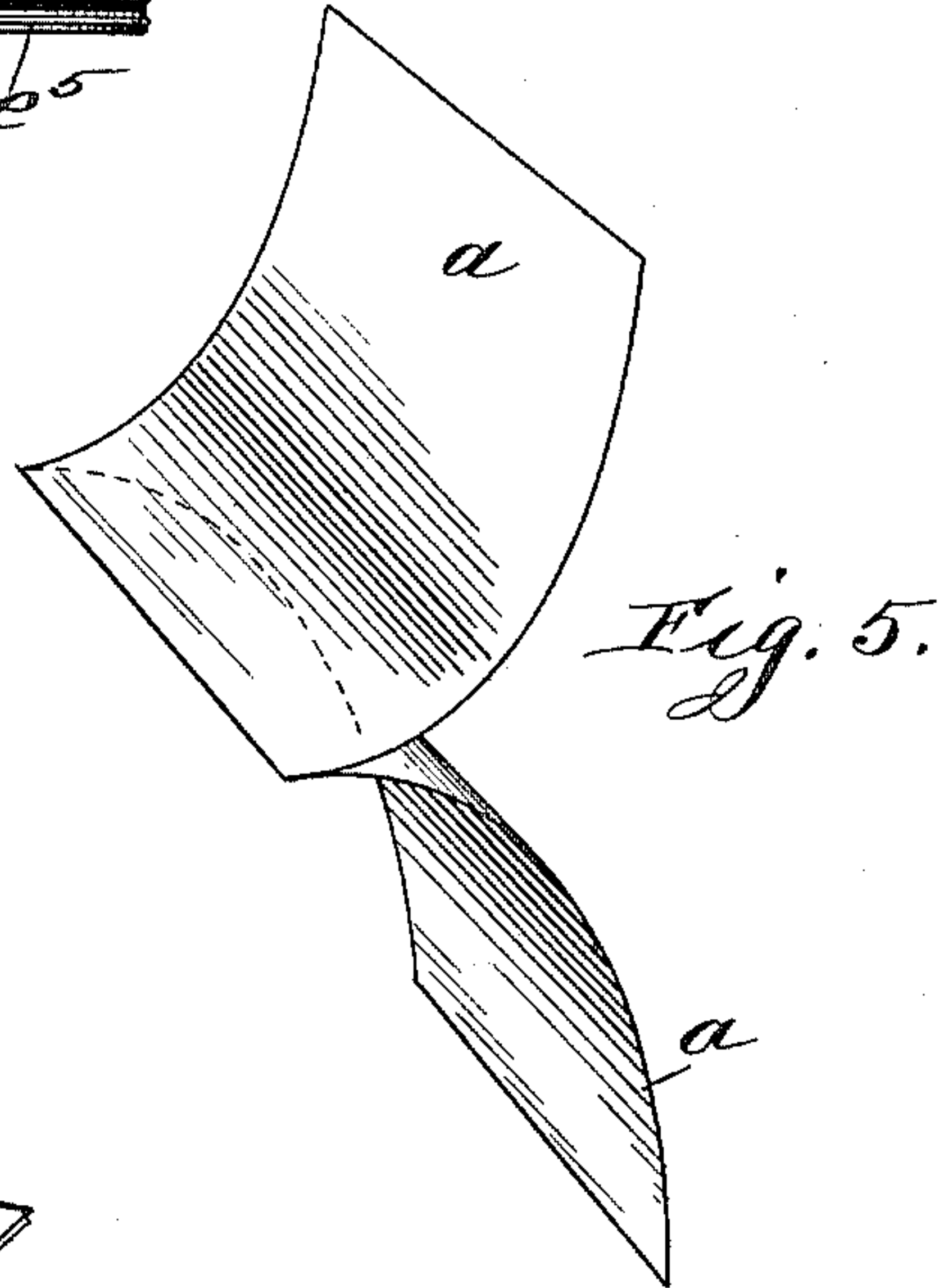
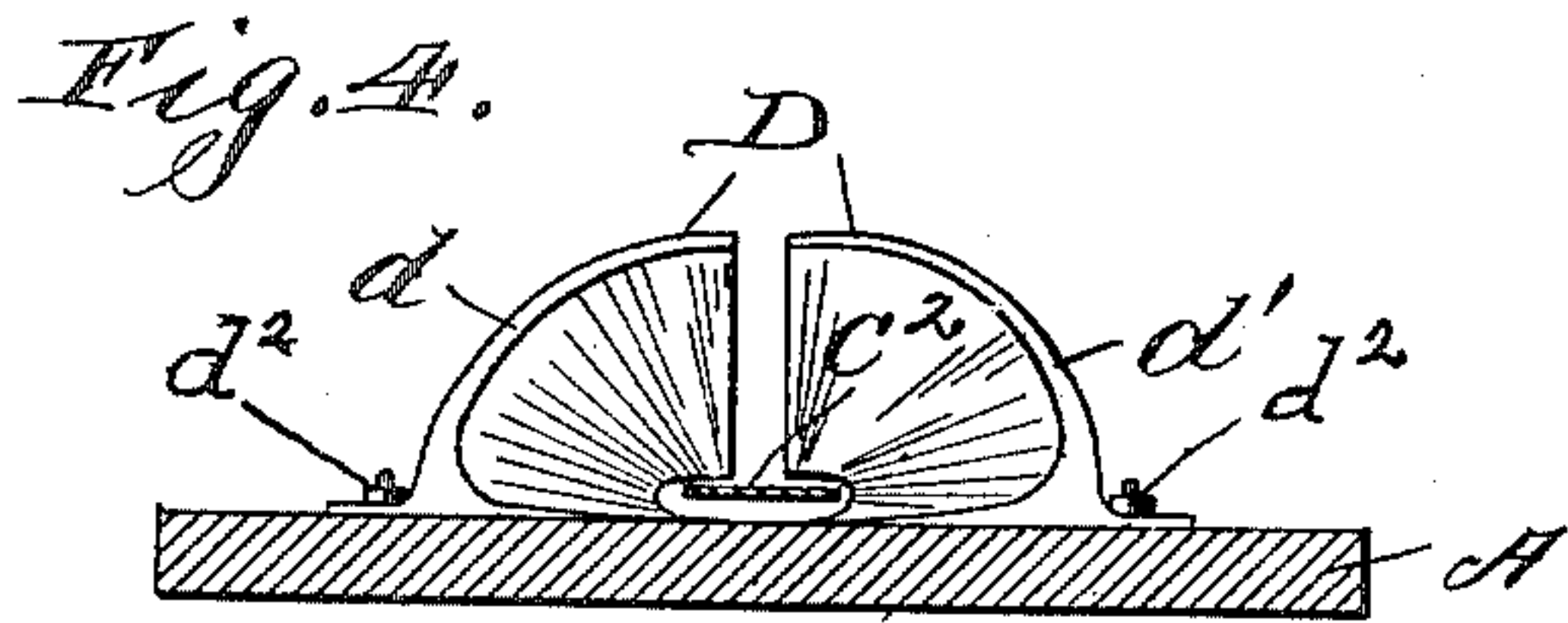
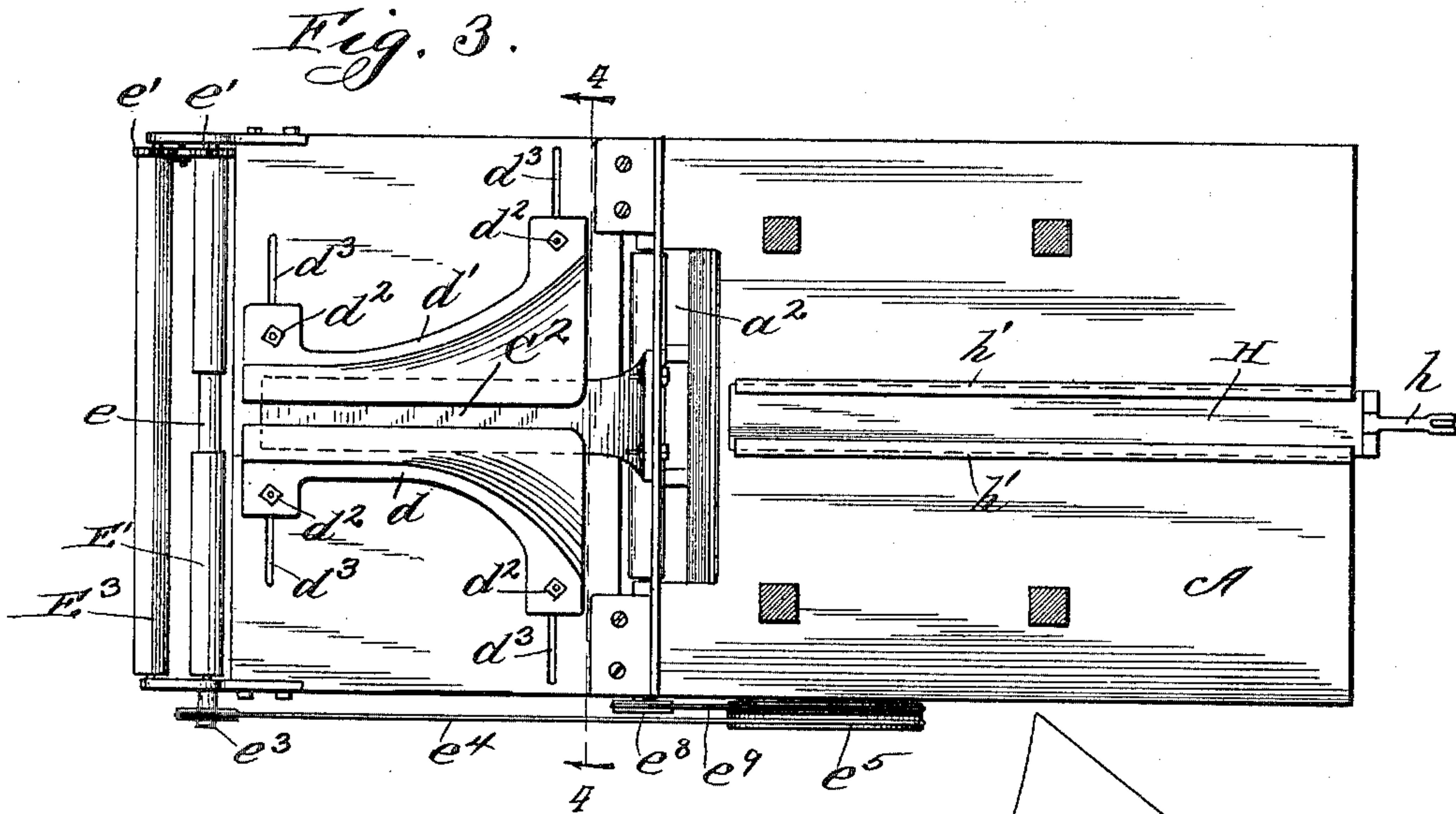
A. R. CLARKE & A. W. RASMUSSEN.

CIRCULAR FOLDING MACHINE.

(Application filed Dec. 28, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
R. J. Jacker,
A. Gustafson

Inventors:
Arthur R. Clarke and
Alfred W. Rasmussen.
By Chas. C. Tiltman
Att'y.

UNITED STATES PATENT OFFICE.

ARTHUR R. CLARKE AND ALFRED W. RASMUSSEN, OF CHICAGO, ILLINOIS.

CIRCULAR-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 659,914, dated October 16, 1900.

Application filed December 28, 1899. Serial No. 741,778. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR R. CLARKE and ALFRED W. RASMUSSEN, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Circular-Folding Machines, of which the following is a specification.

This invention relates to improvements in that class of machines used for folding sheets of paper, such as circular-letters, handbills, and the like; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of our invention are to provide a machine of the above-named character which shall be simple and inexpensive in construction and may be operated by manual power, the parts of which may be readily adjusted so as to fold sheets of paper into different sizes.

In order to enable others skilled in the art to which our invention pertains to make and use the same, we will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a view in side elevation of our machine, showing the parts in position ready for operation. Fig. 2 is a central vertical sectional view thereof. Fig. 3 is a plan sectional view taken on line 3 3 of Fig. 1. Fig. 4 is a cross-sectional view taken on line 4 4 of Fig. 3, showing the guiding-funnel or deflector in elevation. Fig. 5 is a perspective view of a sheet of paper, showing its first position in the act of being folded by our machine. Fig. 6 is a similar view showing the form of the paper at the beginning of the second operation of the machine, and Fig. 7 is an end view of the completely-folded sheet.

Similar letters refer to like parts throughout the different views of the drawings.

A represents the main frame or supporting-table, on which is mounted a platform A', usually inclined forward, and on which the sheets of paper a lie while being fed to the folding mechanism. The top of the table A is provided with a longitudinal slot a' , which extends from its rear end to about its mid-

dle and is for the reception and operation of the operating-lever B, as will be presently explained. The main frame or supporting-table is also provided about its middle with a transverse opening a^2 for the passage of the sheets of paper, as is clearly shown in Figs. 1 and 2 of the drawings. Journaled transversely on the main frame are two rollers C and C', of rubber or other suitable material, the roller C' being preferably located in the transverse opening a^2 , so that its upper surface will be about flush with the upper surface of the supporting-table. These rollers being made of rubber or other soft material will allow the sliding piece H, hereinafter mentioned, to pass therebetween and carry with it the sheet to be folded. Secured to the lower surface of the table A are brackets c , which are provided with slots c' for the reception of set-screws c^2 , which engage stops or plates c^3 , on which the lower edge of the sheet of paper will rest when receiving its initial fold. Secured to the main frame or table near the brackets c and extending downwardly and parallel therewith is a guide-piece c^4 , which prevents the paper slipping off the plates or rests c^3 when in its vertical position. Extending from the upper surface of the supporting-table is a standard c^5 , to which is secured, by means of a set-screw c^6 or otherwise, a forming-piece C', which is curved and extends into the deflector D, as is clearly shown in Figs. 1 and 2 of the drawings. This deflector is composed of two curved parts or sections d and d' , which when in position form substantially a funnel-shaped receptacle and are adjustably secured to the top of the table by means of bolts d^2 , passing through slots d^3 in the table-top. Transversely journaled on the front end of the supporting-table and near the discharging end of the deflector D is a pair of rollers E and E', whose central portions are formed with recesses e (see Figs. 2 and 3) to allow the partly-folded sheets to pass to and between the rollers E² and E³, which are also transversely journaled on the main frame. The rollers E and E² are provided on one of their ends with gears e' , which engage the gear e^2 , suitably journaled on the main frame, and the opposite end of the roller E is provided with a sheave e^3 , over which passes a belt e^4 ,

which also passes over a sheave or pulley e^5 on the main or crank shaft e^6 , which is journaled on the lower portion of the main frame and has mounted thereon a fly-wheel e^7 of any suitable size. Pivotaly secured on the crank-shaft e^6 is a rod f , which may be connected to a treadle (not shown) or other suitable means for imparting power to the machine. Connected at one of its ends to the crank-shaft is a pitman-rod g , whose other end is pivotaly secured to the lever B, which is fulcrumed at its lower end to the main frame and has pivotaly secured to its upper end a link h , the other end of which is similarly secured to the sliding piece H, which is held in place on the top of the main frame by means of guides h' , which extend from the rear portion of the frame to about its middle. One end of the roller C' is provided with a sheave or pulley e^8 , which is connected to the pulley e^5 by means of a belt e^9 .

By reference to Fig. 3 of the drawings it will be seen that the curvature of the section d of the deflector D is shorter than that of the section d' , so that when the sheet of paper is forced through the deflector one edge or corner a^3 thereof will be turned inwardly before the other edge or corner a^4 , thus causing the latter-named corner to overlap the former. (See Fig. 6 of the drawings.)

The operation of our machine is simple and as follows: The sheets of paper a are fed from the platform A', so as to assume a vertical position, into the transverse opening a^2 , as shown in Figs. 1 and 2 of the drawings, when power may be applied to the crank or driving shaft e^6 , which operation will force the sliding piece H forward against the central portion of the sheet of paper and between the rollers C and C', thus giving to the sheet its initial fold, (see Fig. 5,) and from thence through the deflector D, the shorter-curved section of which will cause the corner or edge a^3 to be bent over the sliding piece H and forming-piece C² slightly in advance of the corner or edge a^4 , which is turned inwardly by the longer-curved section d' of the deflector. From the deflector the thus folded and curved sheet of paper is forced by the sliding piece H into the recesses e of the rollers E and E', the shoulders of said rollers engaging the paper and the recesses permitting the free passage of the sliding piece. From these rollers the sheet passes between the rollers E² and E³, where the folding of the sheet is completed and from which

it drops into a box I or other suitable receptacle.

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

1. The combination with a main or supporting frame, of a deflector comprising two curved sections adjustably secured thereto, the curvature of one of said sections being shorter than the other, and means to pass a sheet through the deflector, substantially as described.

2. The combination with a main or supporting frame, of a deflector comprising two curved sections adjustably secured thereto, the curvature of one of said sections being shorter than the other, a forming-piece extending into the deflector, and means to pass a sheet through the deflector, substantially as described.

3. The combination with a main or supporting frame, of a deflector mounted thereon, a pair of rollers transversely journaled near the receiving end of the deflector, a pair of rollers having recesses in their middle portions, and transversely journaled near the discharging end of the deflector, another pair of rollers near the last-named ones, and means to drive all of said rollers and to force a sheet between the first-named pair of rollers, then through the deflector, and then through the rollers having the recesses, substantially as described.

4. The combination with a main frame having about its middle a transverse opening for the reception of the piece to be folded, of a rest adjustably secured below said opening, a deflector mounted on the main frame near the said opening, a pair of rollers transversely journaled near the receiving end of the deflector, a pair of rollers having recesses in their middle portions and transversely journaled near the discharging end of the deflector, another pair of rollers near the last-named ones, a sliding piece movably secured on the main frame, means to drive all of said rollers and to cause the sliding piece to pass between the first-named rollers, the deflector and the recesses of the recessed rollers, substantially as described.

ARTHUR R. CLARKE.
ALFRED W. RASMUSSEN.

Witnesses:

CHAS. C. TILLMAN,
A. GUSTAFSON.