

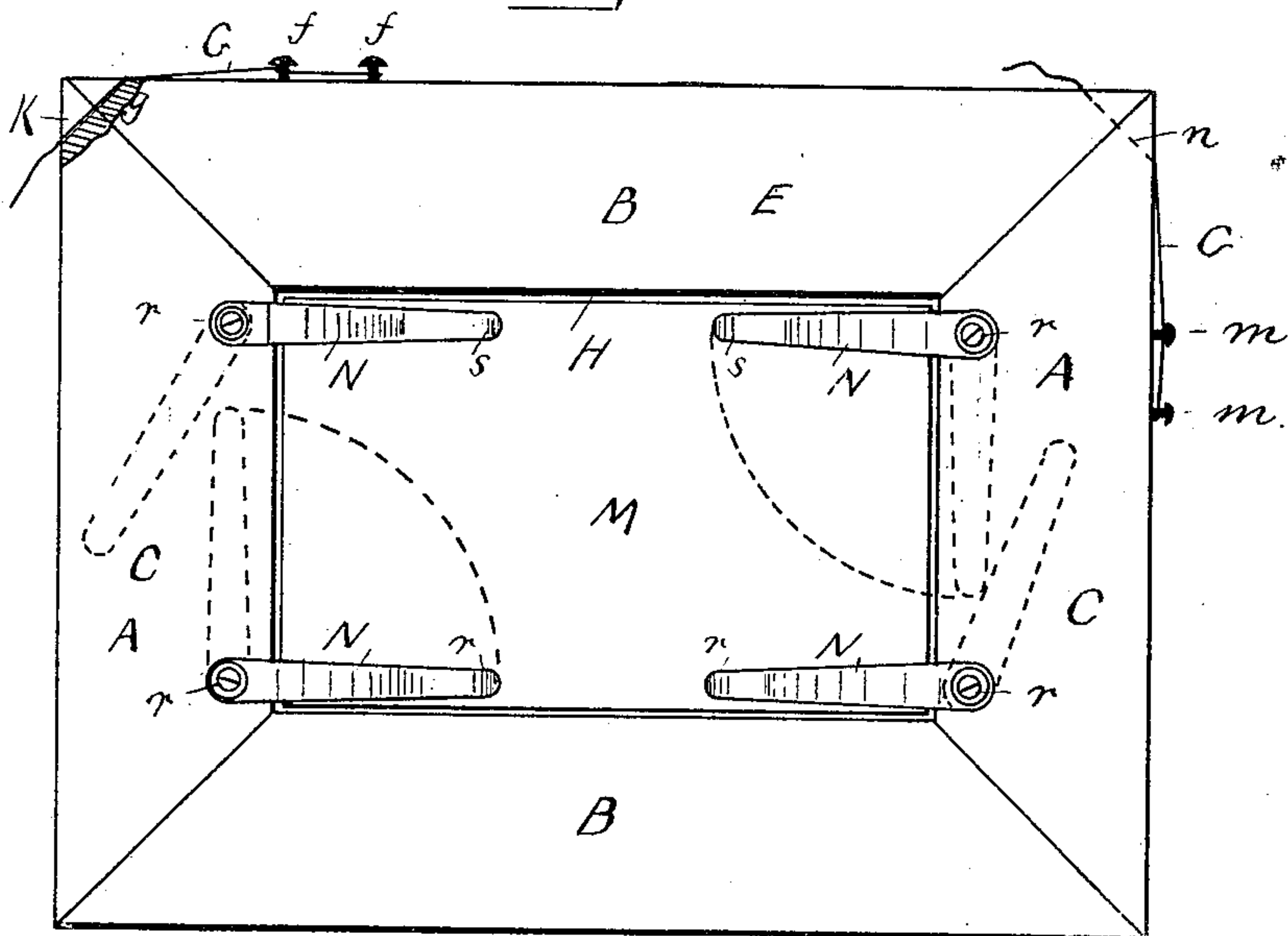
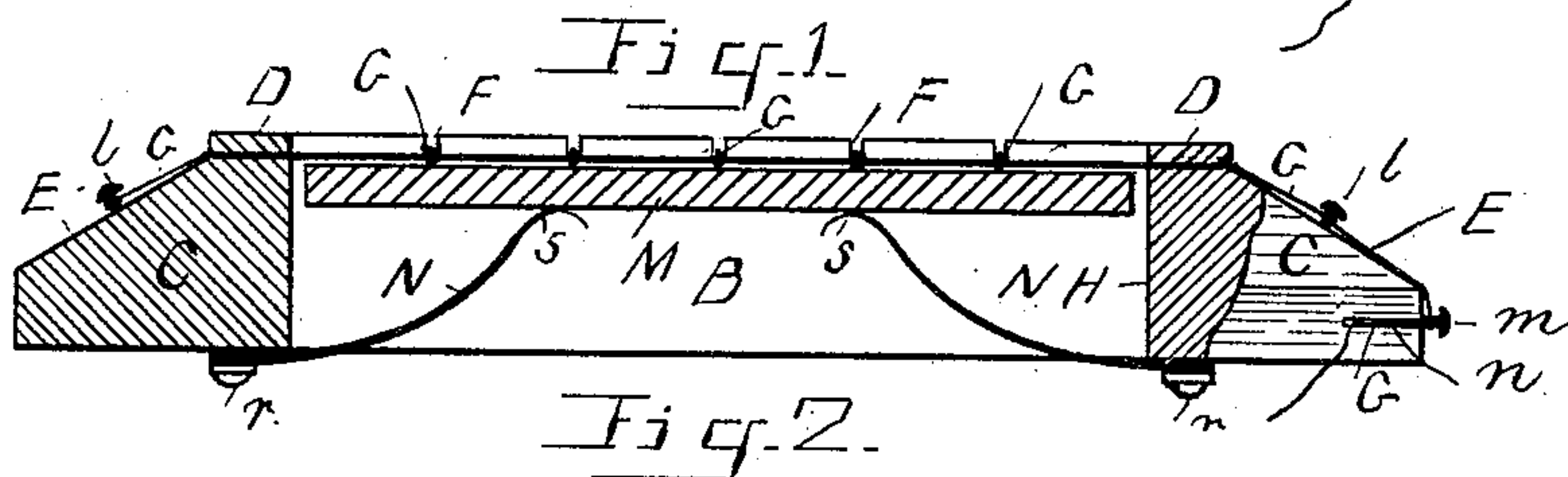
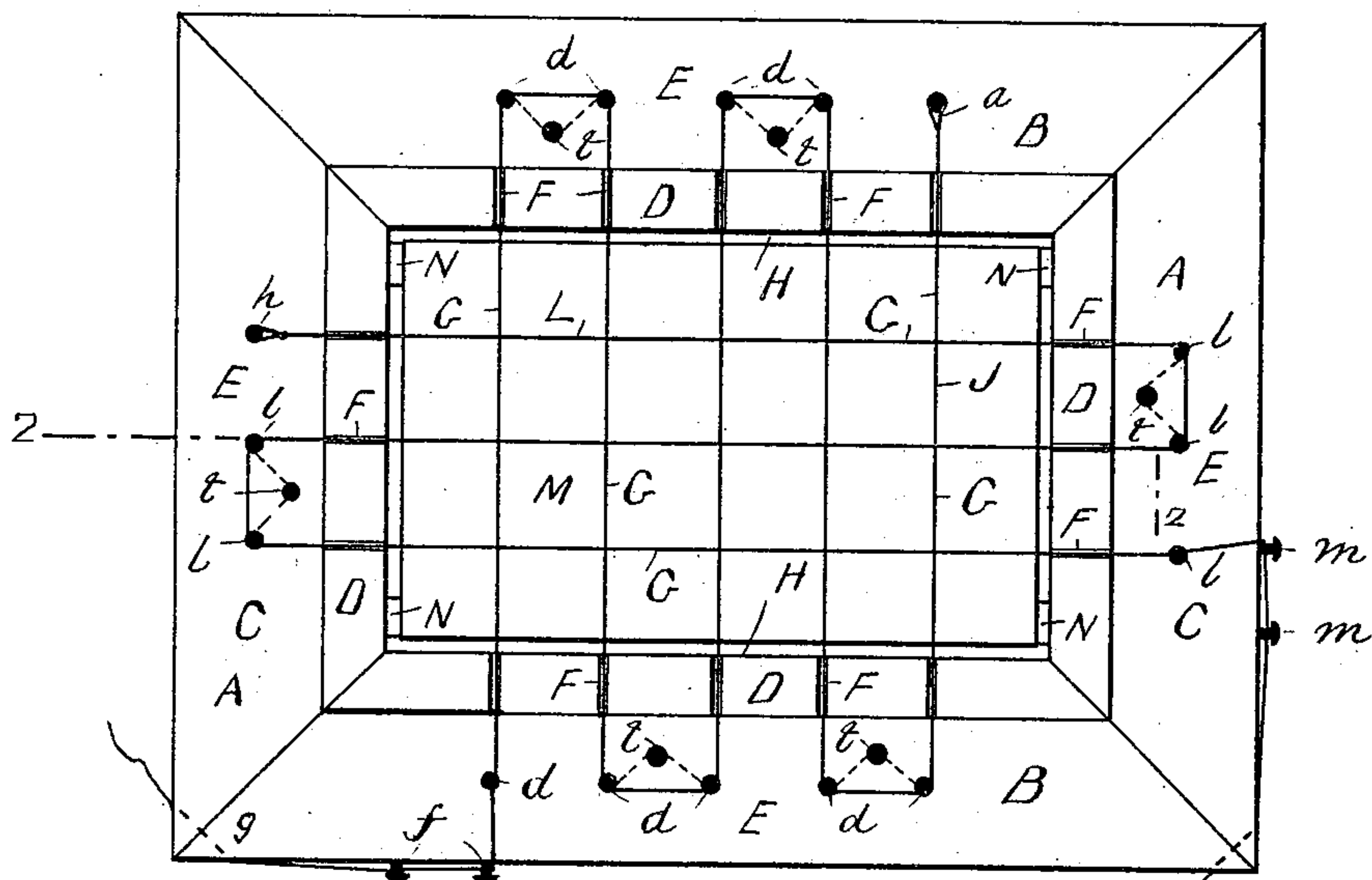
(No Model.)

E. CHARMAN.

APPARATUS FOR FACILITATING COPYING OF PICTURES.

No. 353,919.

Patented Dec. 7, 1886.



WITNESSES

Percy Bryant  
B. S. Bryant

Fig. 3.

INVENTOR

Edmund Charman

PER

Edwin W. Brown.

Attorney



# UNITED STATES PATENT OFFICE.

EDMUND CHARMAN, OF BOSTON, MASSACHUSETTS.

## APPARATUS FOR FACILITATING COPYING OF PICTURES.

SPECIFICATION forming part of Letters Patent No. 353,919, dated December 7, 1886.

Application filed June 29, 1886. Serial No. 206,626. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND CHARMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Facilitating Copying of Pictures, &c., of which the following is a full, clear, and exact description.

This invention relates to a device or apparatus for facilitating the copying or reproducing of a picture, design, or drawing, &c., on either a reduced, enlarged, or the same scale; and the invention consists, in substance, of a frame, of wood or of any suitable material and of desirable form, having strings or cords crossing each other at desired intervals across the front of the frame and properly secured thereto, the frame being adapted to receive and securely hold the picture, design, or drawing, &c., to be copied or reproduced, all substantially as hereinafter fully described.

In the accompanying sheet of drawings is illustrated the present invention, Figure 1 being a plan view; Fig. 2, a longitudinal section on line 2 2, Fig. 1; and Fig. 3, a back view.

In the drawings, A represents a rectangular frame composed of two side pieces, B B, and end pieces, C C, made of wood or of any suitable material and secured together in any suitable manner. The front or top side of this frame has a square or flat rib or projection, D, extending round the four sides of the frame, and from this rib it inclines on all sides, as at E, to the outer edge, as shown. This rib D has transverse vertical slots or grooves F therein, the slots or grooves in one side piece being in line with and opposite the slots and grooves in the other side piece, and so with the slots and grooves in the two end pieces.

G are strings or cords, of any suitable material, extending across the frame, as shown, the horizontal strings crossing at right angles the strings running vertically, and dividing the space H between the sides and ends of the frame at the front into a number of squares, as shown in Fig. 1 more particularly. These cords or strings are arranged and secured in place as follows: The end *a* of one string, J, is fastened or secured to a pin, *b*, on the side piece, and the string is then strung back and forth across the frame in the slots F in the side pieces and around and over the several pins, *d*, in the

side pieces, and its other end then passed over and around the pins *f* and pressed into a slit, K, in the corner *g* of the frame, firmly holding it. The other string, L, is secured to a pin, *h*, in the end piece, and then strung back and forth across the frame in the slots F in the end pieces, and around and over the several pins *l* in the end pieces, and around and over the pins *m*, and pressed into a slit, *n*, in the corner of the frame, holding it firmly.

The several pins on the upper side of the side and end pieces are in line with the slots in their respective pieces.

M is a flat board, of wood or of any suitable material, and small enough to freely fit within the space H of the frame, and when placed therein and against the strings G it is firmly held in place by the flat springs N, secured by the screws *r* to the back of the frame, their free ends *s* bearing on the board, as shown. The springs are swung back from over the space H, as shown in dotted lines in Fig. 3, to either insert or remove the board, and when the board is in the frame are moved back to bear on the board.

In the use of this invention, with the strings properly secured in place on the frame, the board M is first removed, and the picture, design, or drawing, &c., to be copied is placed in the frame, its face side against the strings, the board then placed against the back of the picture and secured by the springs, as described, which closely and securely hold the picture against the strings.

In copying the picture, &c., a sheet of paper or other material on which the copy is to be made is first ruled lightly with a lead-pencil, &c., with lines corresponding in number and arrangement to the strings on the frame that cover or are over the picture, and a distance apart equal to or larger or less than the distance apart of strings on the frame, according as the copy is to be of the same or larger or less size than the original. The copy is then made by marking or drawing in the squares indicated by the lines on the copy-sheet the parts of the picture, &c., shown in the corresponding squares made by the strings on the frame, substantially as is usual in such manner of copying pictures, &c.

*t* are pins between the pins *d* and *l*, and in



front of them, so that if the strings become loose they can be tightened, without unfastening their ends, by placing the portion of the string between any two pins *d* or *l* over a pin, *t*, thus taking up the slack, as shown in dotted lines in Fig. 1 more particularly.

The several pins are driven into the frame or can be secured in any suitable manner, and they have heads, which prevent the escape of the strings therefrom. They can be arranged any desired distance apart, as it is desired to divide the space *H* into large or small divisions. The strings can be arranged in all the slots and over all the pins or at intervals desired.

The copying of a picture, &c., is greatly facilitated by the use of the present invention; it is always ready and convenient for use, and prevents marring of or injury to the picture.

The strings or cords can be in one or more pieces and attached and secured in any suitable manner. The pins *d l* can be dispensed with and the strings or cords passed through the slots and around the rib to secure them; or the slots can be dispensed with and the strings only secured to the pins *d l*, in which case it is preferable to dispense with the rib and have the upper surface of the frame at such place flush with the upper part of the inclined portion.

In copying from a picture that is on a stretcher, or one that has a rigid backing, the board *M* need not be used, as in such case the springs *N* can bear directly on the stretcher or stiff backing; but when the picture, &c., is on paper or flexible material or backing, it is preferable to use the board.

The frame can be of any desired form, the slots and pins being arranged accordingly for the strings to cross each other and be secured, and they can be arranged so that they will divide the space *H* into other forms than squares—such, for instance, as of diamond form.

Having thus described my invention, what I claim is—

1. A drawing-frame, *A*, having springs *N* on its back, and cords or strings arranged

across the front of the frame and each other and secured to the frame, for the purpose specified.

2. A drawing-frame, *A*, having springs *N* on its back, and cords or strings arranged across the front of the frame and each other and secured by pins *d l*, for the purpose specified.

3. A drawing-frame, *A*, having springs *N* on its back and slots *F* in its front, and cords or strings arranged in said slots and across said frame and secured, for the purpose specified.

4. A drawing-frame, *A*, having springs *N* on its back, slots *F* in its front, and cords or strings arranged in said slots and across said frame and secured thereto, in combination with a board, *M*, adapted to fit in said frame, for the purpose specified.

5. A drawing-frame, *A*, having springs *N* on its back, slots *F* in its front, and pins *d l*, and cords or strings arranged in said slots across said frame and about said pins and secured, for the purpose specified.

6. A drawing-frame, *A*, having springs *N* on its back, slots *F* on its front, pins *d l* and pins *m t*, and cords or strings arranged in said slots across said frame and about said pins and secured, for the purpose specified.

7. A drawing-frame, *A*, having springs *N* on its back, slots *F* on its front, and pins *d l*, and cords or strings arranged in said slots across said frame and about said frame and secured in a slit, for the purpose specified.

8. A drawing-frame, *A*, having springs *N* on its back, a rib or projection, *D*, having slots *F*; an inclined portion, *E*, on its front, and pins *d l*, and cords or strings arranged in said slots across said frame and about said pins and secured, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDMUND CHARMAN.

Witnesses:

EDWIN W. BROWN,  
PERCY BRYANT.