

T. J. W. ROBERTSON.

Sash-Balances.

No. 164,038.

Patented June 1, 1875.

Fig. 1.

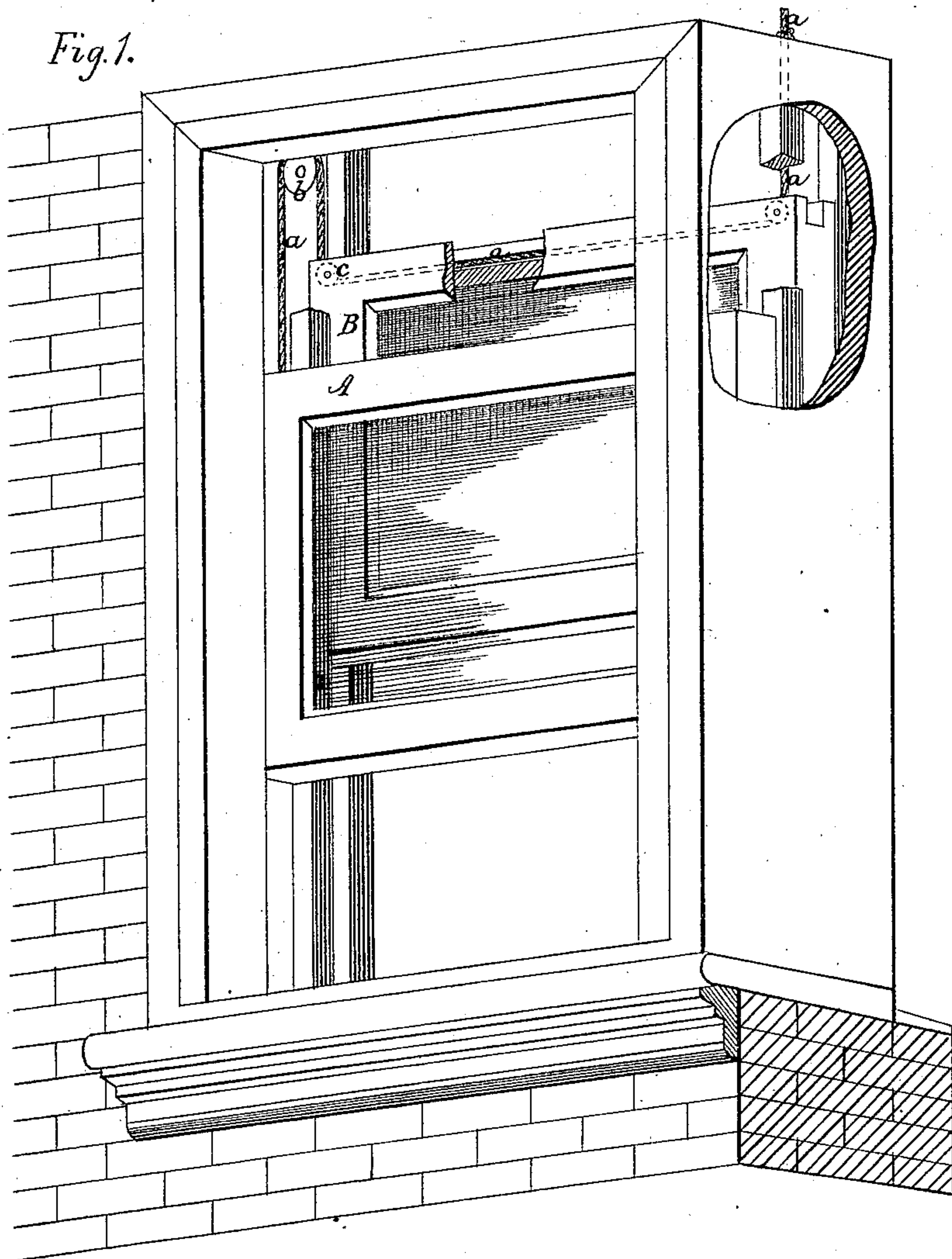


Fig. 2.

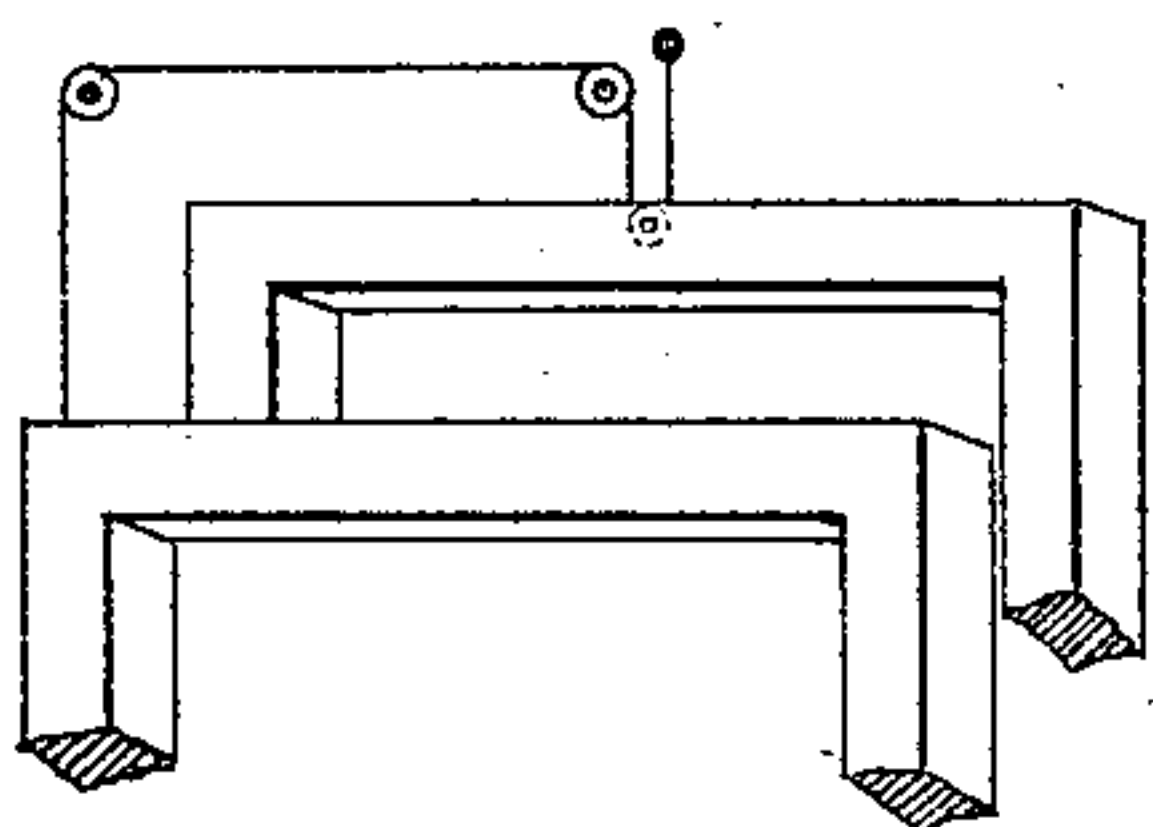


Fig. 3.

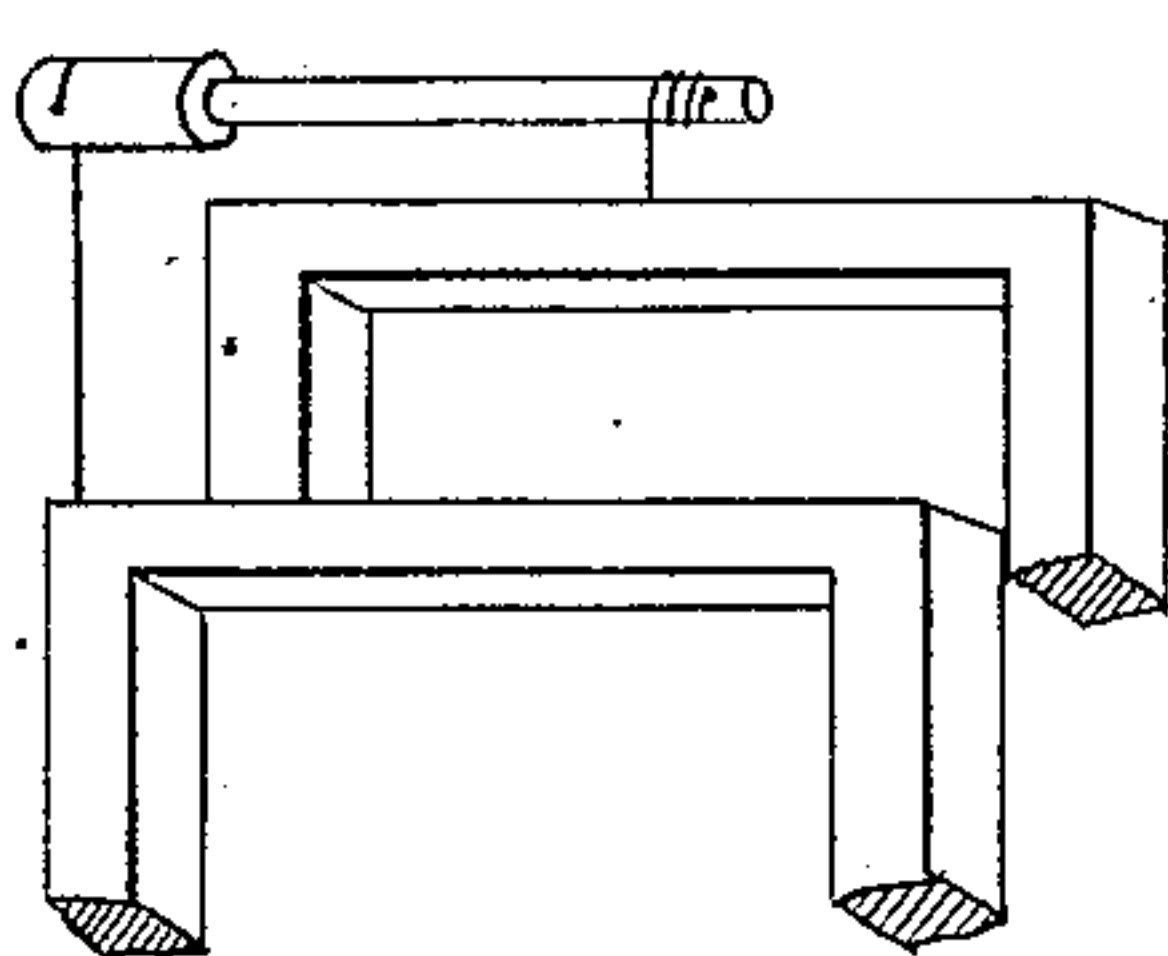
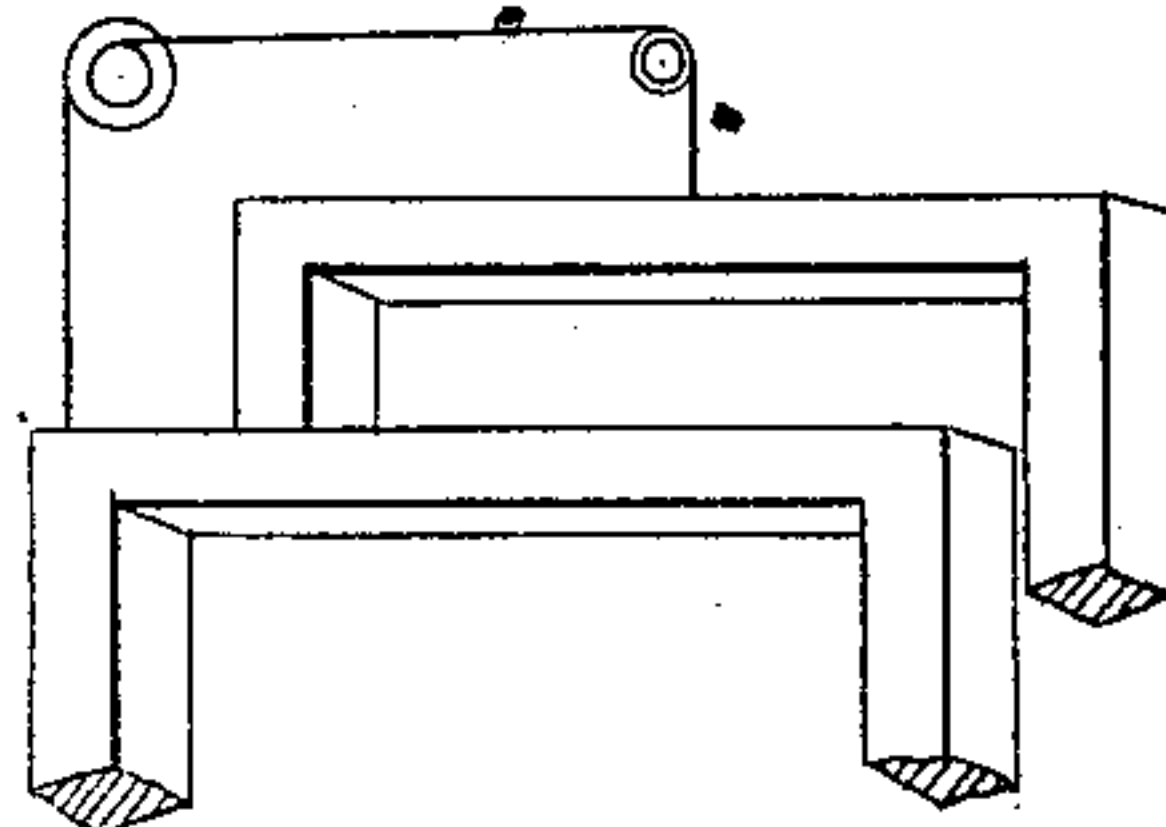


Fig. 4.



WITNESSES

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THOMAS J. W. ROBERTSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. 164,038, dated June 1, 1875; application filed April 27, 1875.

To all whom it may concern:

Be it known that I, THOMAS J. W. ROBERTSON, of the city of Washington, District of Columbia, have invented certain Improvements in Hanging Window-Sashes, of which the following is a specification:

This invention consists in a novel method of connecting window-sashes by a cord or cords so arranged that they may have a differential motion, and yet retain any position in which they may be set, without a counter-balance, stop, or other similar device, in the manner hereafter set forth.

Figure 1 represents a window having the sashes hung according to my improvement, and Figs. 2, 3, and 4 modifications thereof.

In Fig. 1 the cord *a*, attached to one side (preferably the left hand) of the lower sash A, passes over a pulley, *b*, thence down to and under a pulley, *c*, in the left-hand corner of the upper sash B, and along a channel or groove therein, to and under another pulley in the opposite corner of said sash B, from whence it passes to the top of the frame, where it may be made fast in any convenient manner.

By this arrangement of the cord the sashes have a differential movement, so that the lower one rises twice as fast as the other falls, and as the former is only hung by one side the strain of the weight of the other sash causes it to "cant" over, so as to bind corner-wise in the frame, and thus prevent a downward movement, which would occur if the sash having the greatest motion were connected to the cord by the center or both sides, so as to be evenly balanced, unless prevented by a counter balance, stop, or some equivalent device. This is owing to the fact that the upper sash, being evenly balanced, runs freely; but as soon as the hand used in raising the other is removed the friction on the latter is increased by the rubbing of its opposite corners against the frame, caused by the strain being all on one side, and it is by having one sash evenly suspended, and the other hung from one side only, that I am enabled to dispense with the usual weights, springs, or stops, and yet have a differential movement of the sashes.

Fig. 2 shows a modification, in which the

cord, after passing over one pulley in the corner of the frame, passes along to and over another pulley near the center, and down to and under a pulley in the center of the top rail of the upper sash, and from thence up to the frame, where it should be fastened, as in Fig. 1.

In Fig. 3 a roller is used, one end of which is made much larger than the other. A cord from one side of the lower sash is attached to the large end of the roller, and one from the middle of the upper sash to the small end, whereby a differential motion of the sashes may be produced, which will vary in proportion to the difference in the size of the ends of the roller.

Fig. 4 shows another form in which a short roller, similar to that described in Fig. 3, is used; but the cord from the upper sash passes over an additional pulley near the center of top of the frame before it reaches the roller.

These or other modifications may be adopted in carrying out my invention without varying from the essential features thereof, which consist mainly in so arranging the cord or cords that the sash having the least motion shall be evenly suspended, and the other hung from one side only, whereby a differential movement may be given to the sashes without the use of weights, springs, or other equivalent devices, and yet allow of the sashes remaining in any desired position without stops or fastenings.

Having thus described my invention, I claim as new—

In combination with a pair of sashes, a suspending cord or cords, connected therewith, and with the window-frame, one end of the cord being attached to the side of the lower sash, and another portion connected with the center or both sides of the upper sash, whereby one of the sashes is evenly suspended and the other hung from one side, thus producing a differential movement of the two, and rendering them self-balancing, substantially as shown and described, for the purposes set forth.

T. J. W. ROBERTSON.

Witnesses:

A. B. ROBERTSON,
CORA ROBERTSON.