(No Model.) 2 Sheets—Sheet 1.

W. E. FRANK & O. S. FOSTER.

SPRING BED BOTTOM.

No. 466,535. Patented Jan. 5, 1892.

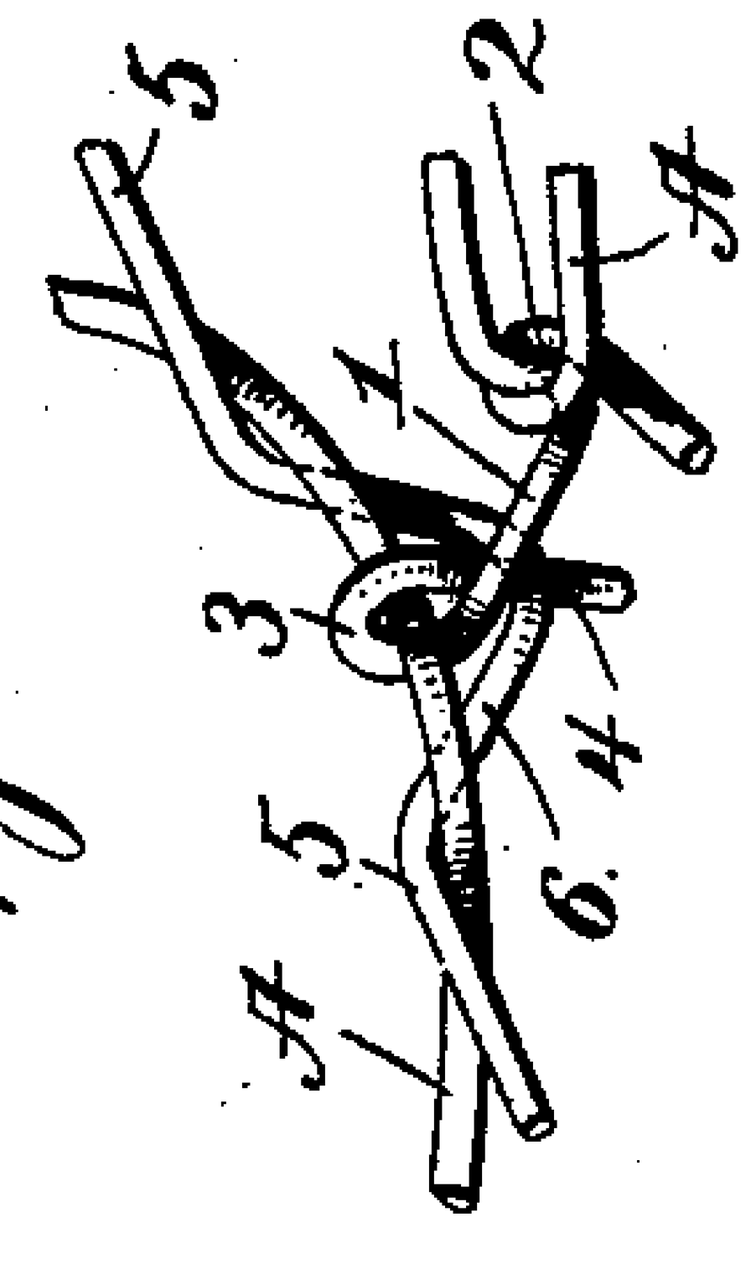

Fig. 2.

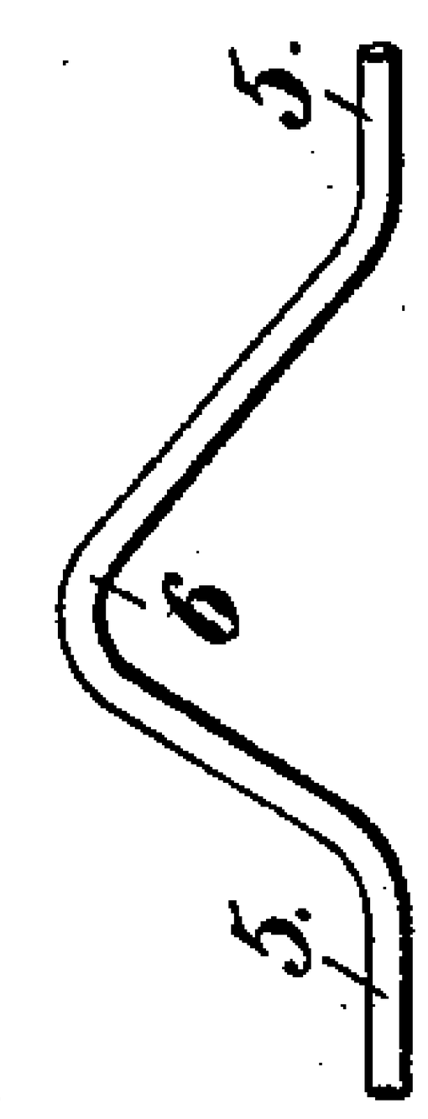

Fig. 3.

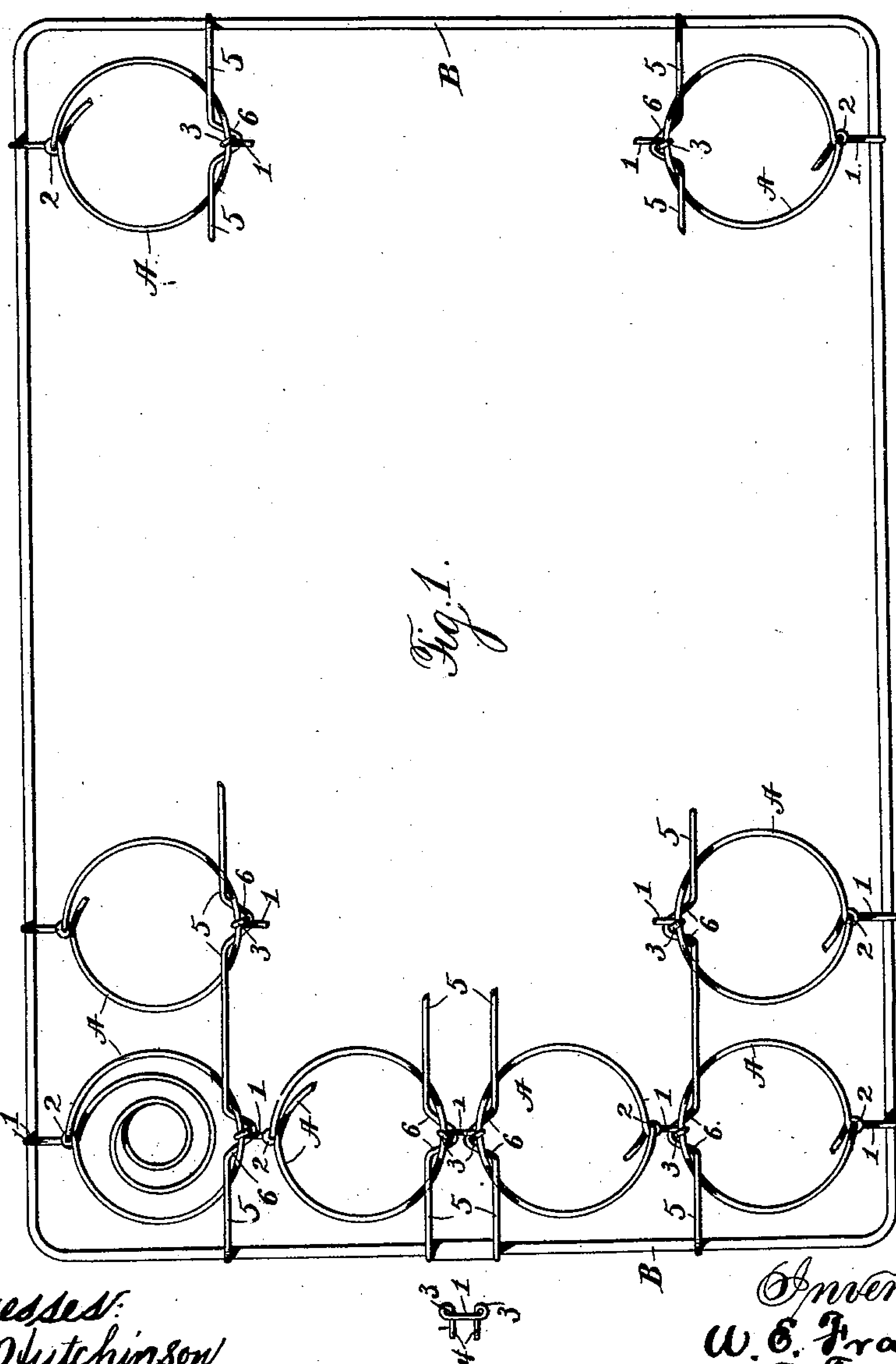

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

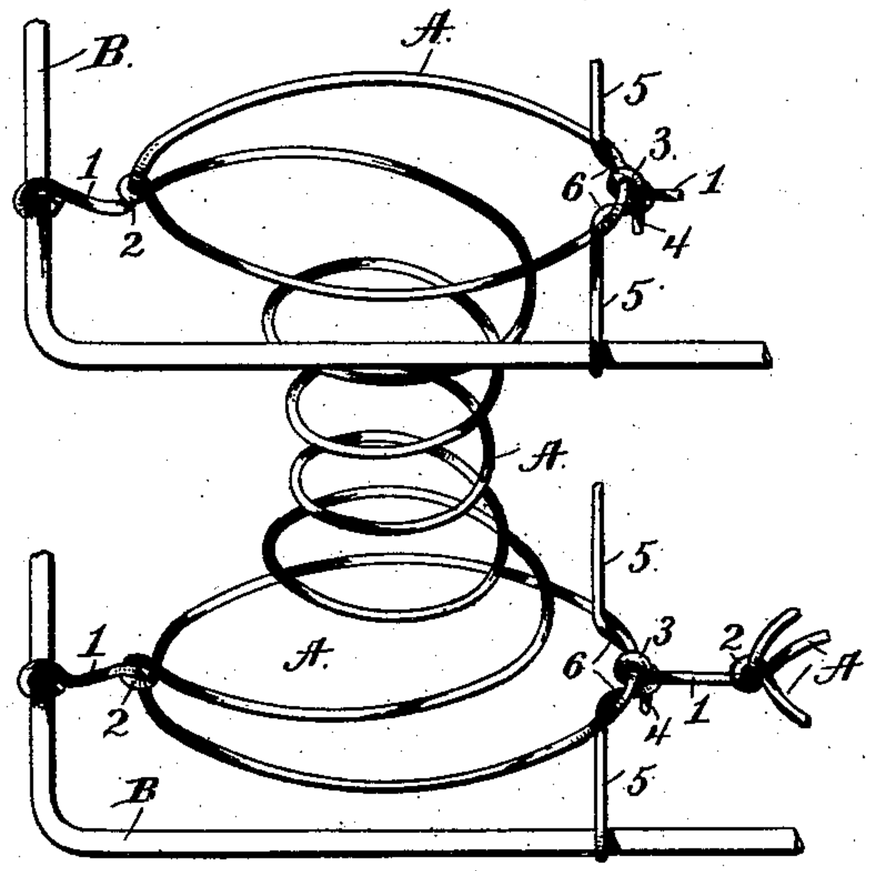
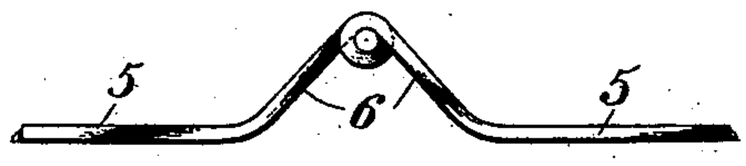


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM E. FRANK, OF ST. LOUIS, MISSOURI, AND OSCAR S. FOSTER, OF UTICA, NEW YORK.

SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 466,535, dated January 5, 1892.

Application filed January 10, 1891. Serial No. 377,314. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM E. FRANK, of St. Louis, in the State of Missouri, and OSCAR S. FOSTER, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Spring Bed-Bottoms; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in spring bed-bottoms, the object being to provide simple and improved means for connecting the several springs constituting the bed-bottom, whereby a continuous yielding surface is produced and any weight thereon will be sustained by all parts of the bed-bottom.

A further object is to provide a reversible or non-reversible bed-bottom, accordingly as required, and one capable of being easily and quickly put together, and finally to produce an article which can be constructed with less than the usual amount of material and can be placed on the market at a comparatively small price.

With these ends in view our invention consists in certain novel features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a plan view of our preferred form of construction. Fig. 2 is an enlarged detail showing the connection between the various springs comprising the bed. Fig. 3 is a detached view of the preferred form of tie-wire. Fig. 4 is a modified form of bed-bottom, and Fig. 5 shows a modified form of tie-wire.

A A represent double spiral springs, and B B are border-wires, to which the outer springs are connected by bending the ends of the wire forming the springs around the border-wires.

The novelty of our invention consists in the peculiar means by which the spiral springs are connected together, which will now be described.

Each spiral spring terminates at the opposite ends in small arms 1 1, formed by extending the wire which constitutes the spring through small loops 2 2 in the outer coils of the springs and then bending the ends outward. At the extreme outer ends these arms are provided with open loops or hooks 3 3, adapted to receive the outer coils of the next spring, they being open just sufficiently to receive the coil with slight pressure, after which they spring together again and prevent accidental disconnection of parts. The ends 4 4 of the hooks extend outwardly for some distance approximately at right angles to the arms 1 1, forming shanks, the object of which will be apparent when the next element of our invention is described.

Tie-wires 5 5 extend longitudinally or transversely of the bed and are connected at their ends with the border-wires B B. These tie-wires serve a double purpose. They maintain the relative distances between the springs, making one continuous spring-surface, and they furnish a support to the individual springs, equalizing the strain throughout the entire surface. These tie-wires are provided with loops 6 6, adapted to enter the ends of the spiral springs and hook over the ends 4 4 of the open loops or hooks 3 3. The loops 6 6 may be differently shaped, as shown; but the preferred form is U-shaped, V-shaped, or, still better, an irregular V shape, in which one side of the loop is a trifle longer than the other in order to accommodate themselves better to the open loops which they embrace. In still another form, as illustrated, the loops 6 6 may be in the form of a spiral. In fact this mode of connection could be otherwise varied, the essential feature being some means of connection between the tie-wires and the ends 4 4 of the open loops or springs; and, too, such connection should be in the nature of a truss, which is supported on the outer spirals of the springs when weight is applied and so connected with the ends 4 4 that they prevent an inward hinging of the adjacent rows of springs, thus producing a continuous yielding surface, every part of which is alike regardless of the application of the weight.

In the constructions above described the bed is reversible—that is, the uppermost surface is always the same as shown in Fig. 1 by virtue of the ends 4 4 of the hooks 3 3 all projecting inwardly; but a bed-bottom con-

structed in this manner is calculated to rest on slats, it receiving no extended support at the lower ends of the springs. Hence for beds in which the bed-bottom is supported wholly from the edges we have devised the construction shown in Fig. 4, in which a double support is given the bed-bottom. This is not a reversible bed-bottom, but on the contrary is non-reversible, being made so by furnishing the same kind of support at the bottom that is given at the top. In other words, the ends 4 4 on both surfaces are made to project the same way or downward. In this manner the same qualities of equalizing strain mentioned in connection with the uppermost surface in the other construction obtain in this at the bottom as well as at the top, and consequently a bed-bottom of great strength and durability is produced and one at the same time which only requires support at its edges.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of our invention, and hence we do not wish to limit ourselves to the exact construction herein set forth; but,

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

A spring bed-bottom composed of spiral springs, arms projecting laterally from the ends of said springs, these arms terminating in hooks adapted to receive and encircle the end coils of adjacent springs, the ends of the hooks projecting inwardly, and tie-wires of sufficient length to extend over a number of the springs, said tie-wires bent inwardly at each spring to receive the inwardly-projecting ends of the hooks, whereby a sustaining-surface is produced at the opposite sides of the bed-bottom, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

WILLIAM E. FRANK.
OSCAR S. FOSTER.

Witnesses to William E. Frank:
N. H. FOSTER,
H. S. TUTTLE.
Witnesses to Oscar S. Foster:
GEO. F. DOWNING,
V. E. HODGES.