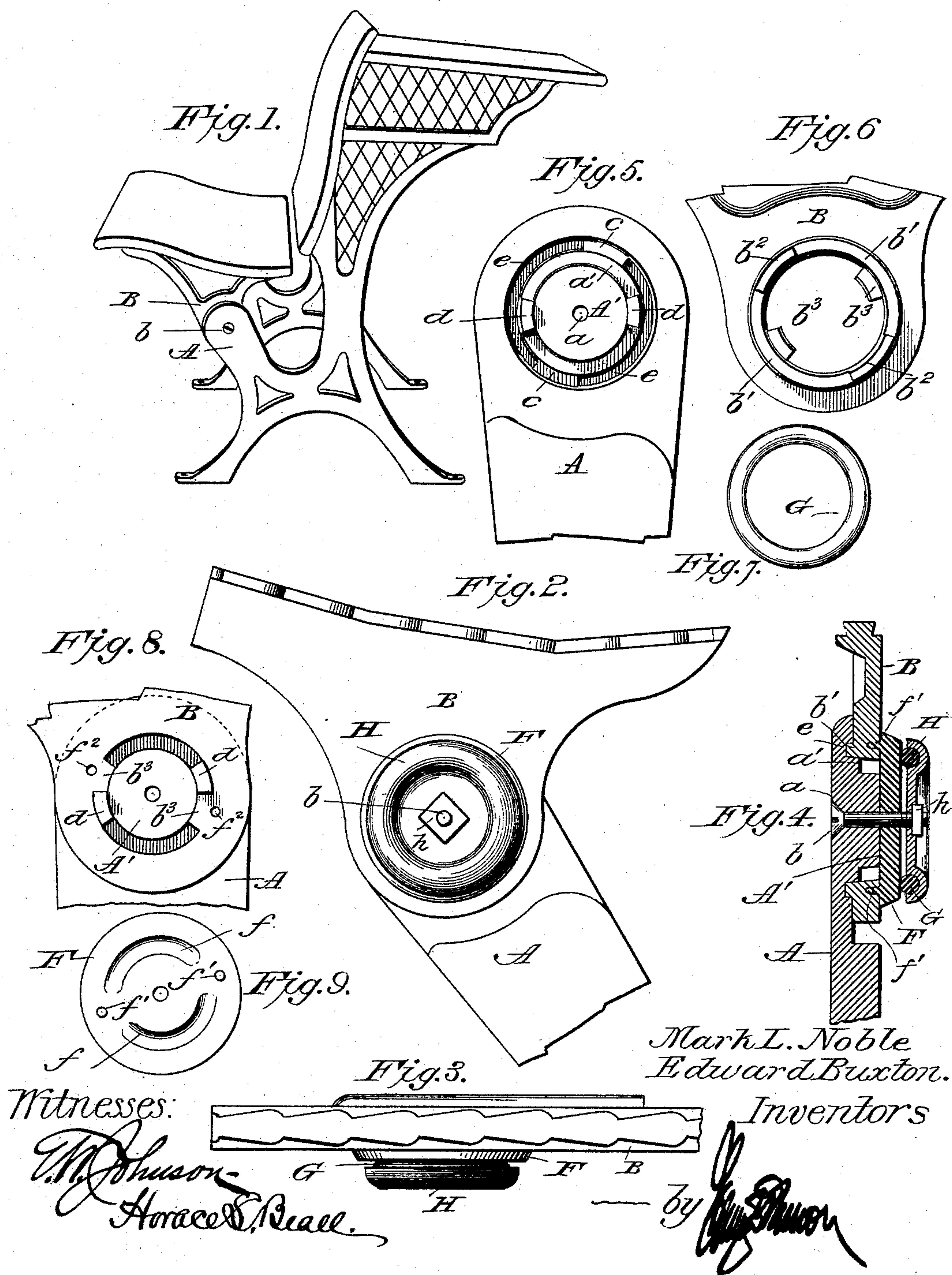


2 Sheets—Sheet 1.

No. 522,916.

Patented July 10, 1894.



(No Model.)

2 Sheets—Sheet 2.

M. L. NOBLE & E. BUXTON.
HINGE FOR SCHOOL DESK SEATS.

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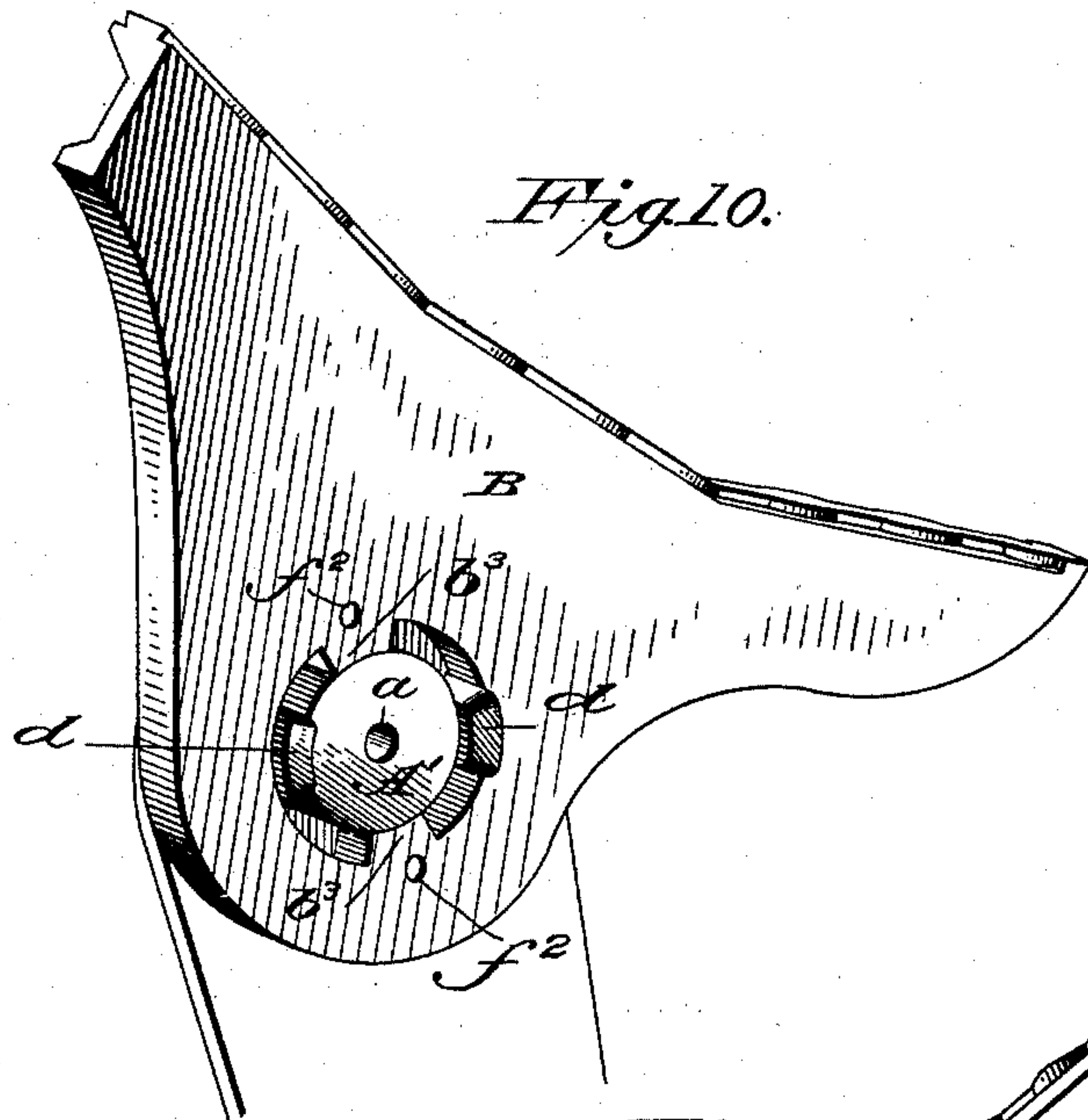


Fig. 11.

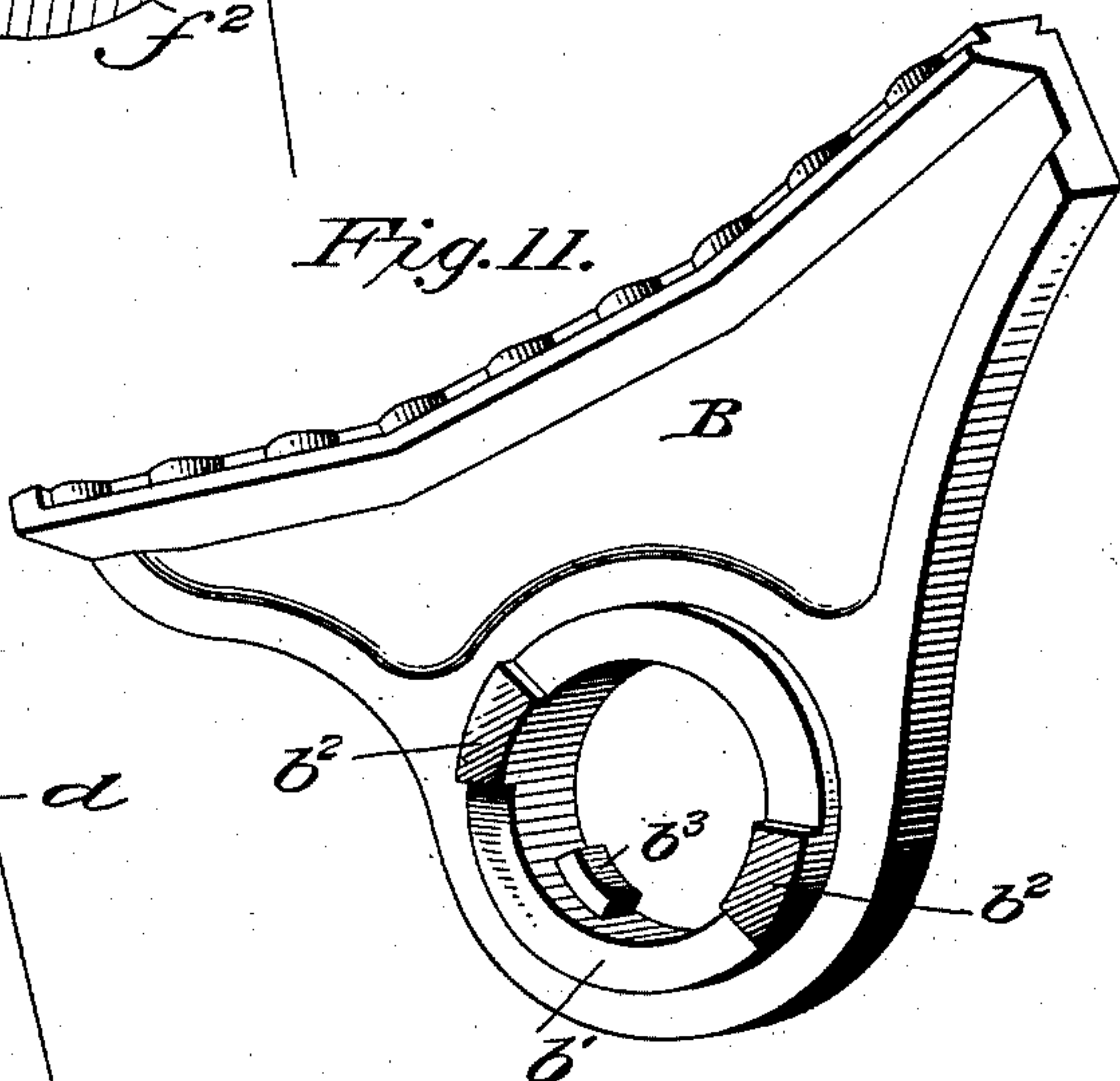
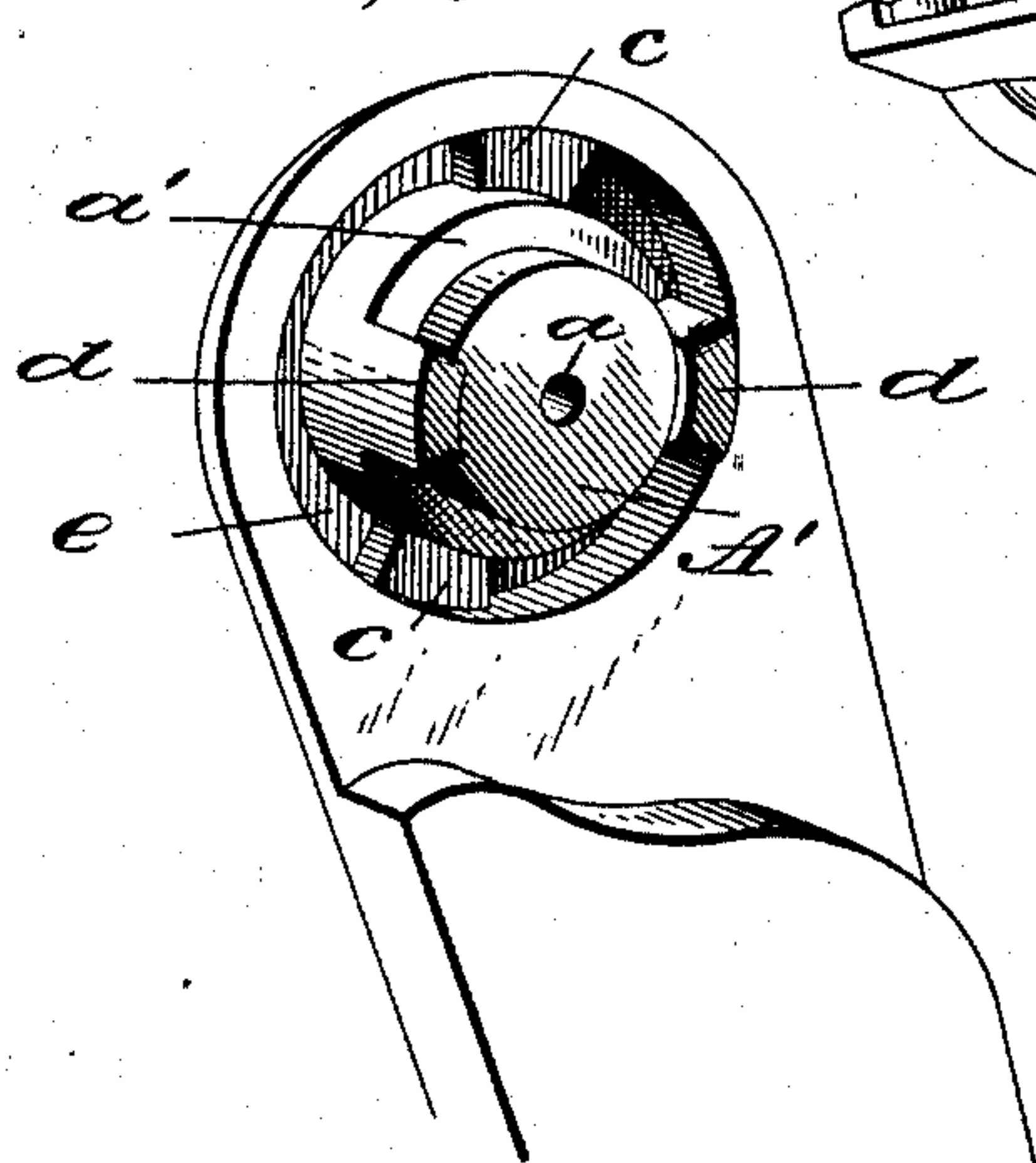


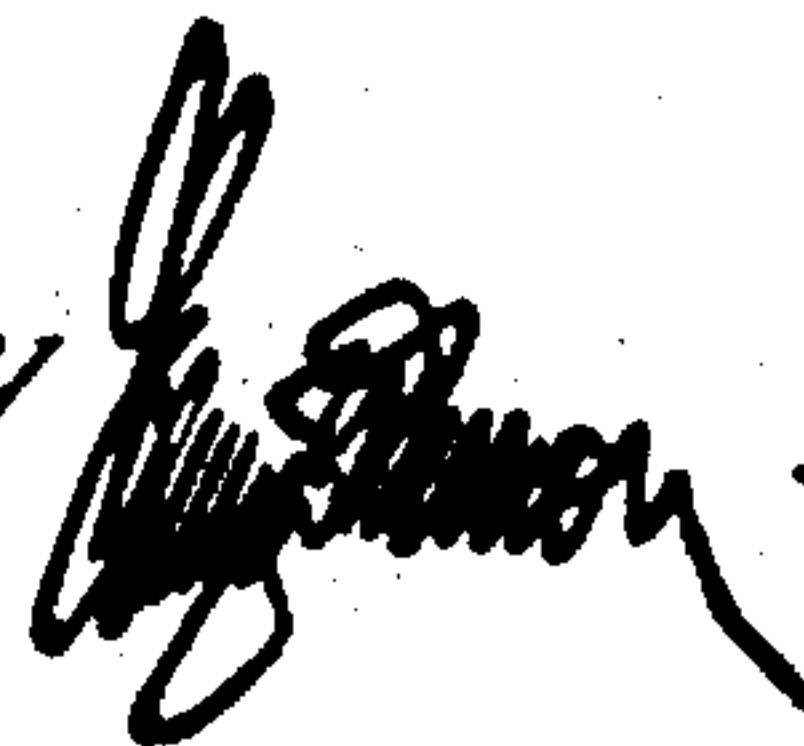
Fig. 12.



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UNITED STATES PATENT OFFICE.

MARK L. NOBLE AND EDWARD BUXTON, OF FOREST GROVE, OREGON.

HINGE FOR SCHOOL-DESK SEATS.

SPECIFICATION forming part of Letters Patent No. 522,916, dated July 10, 1894.

Application filed May 19, 1893. Serial No. 474,849. (No model.)

To all whom it may concern:

Be it known that we, MARK L. NOBLE and EDWARD BUXTON, citizens of the United States of America, residing at Forest Grove, in the county of Washington and State of Oregon, have invented certain new and useful Improvements in Hinges for School-Desk Seats; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in hinges, of that class which are adapted to be applied to school desks.

The object of the invention is to provide a tension hinge which will permit the seat to be raised and lowered, the parts being so constructed that there will be a tension exerted upon the bolt which will draw the parts together as the seat reaches the limit of its movement in either direction. And the invention consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a view showing the application of our improvements to a school desk. Fig. 2 is a side elevation showing a portion of the inner side of the frame of the desk and the upper casting or fixture to which the seat is attached. Fig. 3 is a plan view of the part shown in Fig. 2. Fig. 4 is a sectional view. Fig. 5 is a side elevation of the part of the hinge which is formed on the seat supporting frame, the fixture to which the seat is attached being removed. Fig. 6 is a side elevation of the part of the hinge to which the seat is attached. Fig. 7 is a view of the elastic washer. Fig. 8 is a view of the opposite side of the part of the hinge to which the seat is attached from that shown in Fig. 6, the part of the hinge which is formed on the seat supporting frame being shown in connection therewith. Fig. 9 is a plan view

of the plate upon which the washer bears, and Figs. 10, 11 and 12 are detail perspective views.

A designates an arm or casting, which is preferably a part of the seat supporting frame, as well as the desk frame, said arm having one side plain with a countersunk bolt-hole, *a*, for the reception of the bolt *b*. The opposite side of this arm has formed integral therewith a hub, *A'*, which is slightly tapered and is reduced at its outer end to provide an annular shoulder or step *a'*, and the arm is provided with a recess, *e*, which surrounds the hub and is adapted to receive an annular projection on the other part of the hinge, as will be hereinafter described. Within the recess *e* are formed stops, *c c*. The hub is also provided with stops, *d d*, which extend from the shoulder or step *a'* beyond the end of the same, the ends of said stops being slightly rounded to provide bearing surfaces which bear against inclined recesses in a plate *F* hereinafter set forth.

It will be noted, by reference to Fig. 5, that the stops *c* and *d* are not exactly at right angles with each other the arrangement shown being preferred, as they then co-act with the stops of the part or fixture *B* to permit the adjustment of the seat to its proper position when either raised or lowered.

B designates the fixture or part of the hinge to which the seat is attached, and this fixture is provided with a circular aperture or opening the side walls of which are tapered, as shown in Fig. 4. Upon one side of the fixture and surrounding the circular opening therein is a flange or annular projection, *b'*, which is adapted to lie partly within the recess *e* surrounding the hub on the fixture *A* and bear upon the stops *c c* therein, projections or stops *b²* being formed on the annular projection *b'* to extend past the inner face of the stops *c* and into the recess *e*, so that when the parts *A* and *B* are turned upon each other such movement will be limited by the stops *c c* and *b² b²* engaging with each other. The part *B* of the hinge is also provided with stops *b³ b³*, which project within the circular aperture or opening and when the parts *A* and

B are together lie against the inner face of the shoulder *a'* and engage with the projections or stops *d d* hereinbefore referred to.

It will be noted that by the construction so far described the parts A and B are provided with two sets of stops on different planes which engage to limit the movement of the seat, and these parts when in position will operate independent of any bolt connecting mechanism or tension device.

F designates a plate which is provided centrally with a bolt aperture and surrounding said bolt aperture with two semi-circular grooves or recesses, *ff*, the ends of which are inclined outward. This plate is provided with studs *f'* which enter apertures therefor in the fixture B, so that when the plate is placed on the fixture B with the studs in the apertures, and the parts A and B are in connection with each other, the projections or stops *d d* will be located in the semi-circular recesses *ff* of the plate.

G designates a rubber ring or washer, which is placed between the plate F and a washer placed upon the end of the bolt, said washer, H, having an annular groove or recess to receive the rubber ring, and on its other side is provided with a rectangular recess to receive the nut which is turned upon the bolt to connect the parts of the hinge together.

In placing the parts together the part of the hinge, B, having the circular opening and annular projection is placed over the part having the hub so that the stops will be in position to engage, the bolt is then passed through the aperture *a* and the plate F placed over the end of the same so that the studs *f'* thereon will enter the apertures therefor in the part B, after which the washer H carrying the rubber ring G and the nut *h* is placed upon the bolt and turned to adjust the parts properly upon each other. Now in turning the seat to either a raised or lowered position the inclined ends of the base portion of the semi-circular recesses in the plate F, which engage the projections *d d*, will ride upon said projections, and force the plate against the rubber ring and thereby increase the frictional contact of the parts so that the stops will strike each other with less force and thus lessen the noise incidental to the changing of the position of the seats.

This device though described as being applied to a school desk may be applied to an opera chair or other class of furniture in which two parts swing upon each other.

We are aware that prior to our invention it has been proposed to provide a hinge both

parts of which are provided with stops and a spring for holding the parts in frictional contact, and we do not claim such construction broadly; but

What we claim as new, and desire to secure by Letters Patent, is—

1. In a hinge or connection for seats, the combination, of a fixed support having a hub and stops *c* and *d*, which project at right angles with each other so that one pair of stops will extend toward the center of the hub and the other pair inwardly toward the adjacent section of the hinge and a movable part having an opening to receive the hub, an annular projection with stops which engage with the stops *c* and stops which project within the opening and engage with the stops *d*, substantially as shown.

2. A hinge for the purpose set forth, consisting of the parts A and B, one of the parts as A having a hub constructed as shown and provided with oppositely located stops *c c*, and stops *d, d*, the other part as B being adapted to lie over the hub and having inwardly projecting stops which are adapted to engage with the stops *d* and stops which engage with the stops *c*, a plate F having semi-circular recesses, and a compressible washer located between the plate and the nut of the bolt which connects the parts together, the ends of the stops *d d* engaging with the recesses in the plate F substantially as shown, whereby the frictional contact of the parts is increased toward the limit of the movement of the parts in either direction, for the purpose set forth.

3. In a joint-hinge, the combination with the parts A and B constructed substantially as shown and provided with stops for limiting their movement upon each other, one of the parts having projections *d d* with rounded ends, of a plate F having studs *f'* which fit into perforations in the part B and semi-circular recesses which are inclined longitudinally and are engaged by the projections *d*, a compressible washer adapted to bear upon the plate F, and a disk grooved circumferentially for retaining the compressible washer in place, the parts being connected together by a bolt, substantially as shown and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

MARK L. NOBLE.

EDWARD BUXTON.

Witnesses:

A. M. GRUBBS,

OLIVER R. DOWNS.