No. 607,050. Patented July 12, 1898.

F. R. JONES & F. S. DEARBORN.

HINGE.

(Application filed Mar. 1, 1898.)

(No Model.)

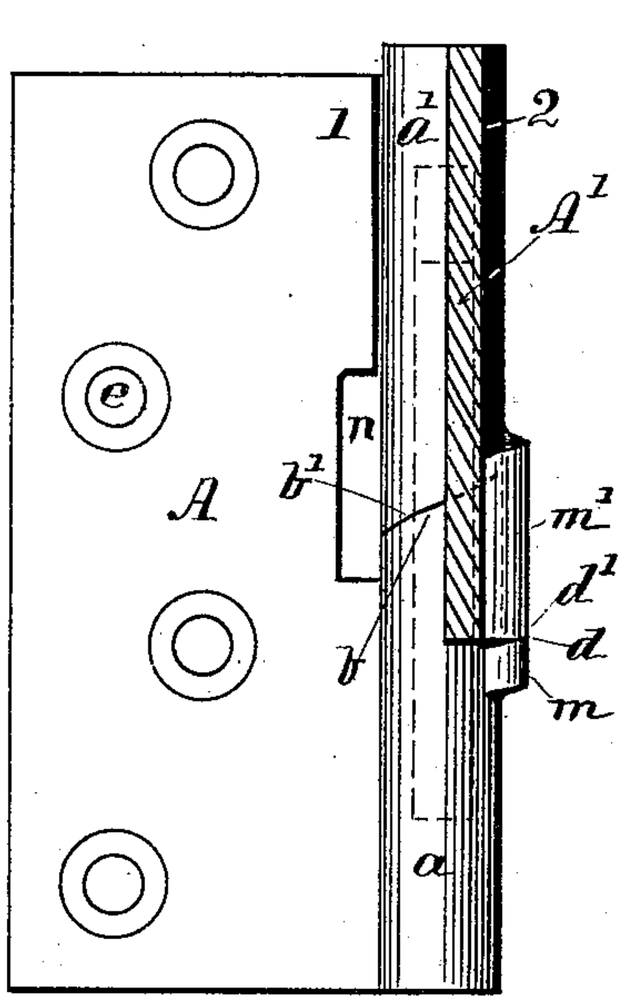

FIG. 2

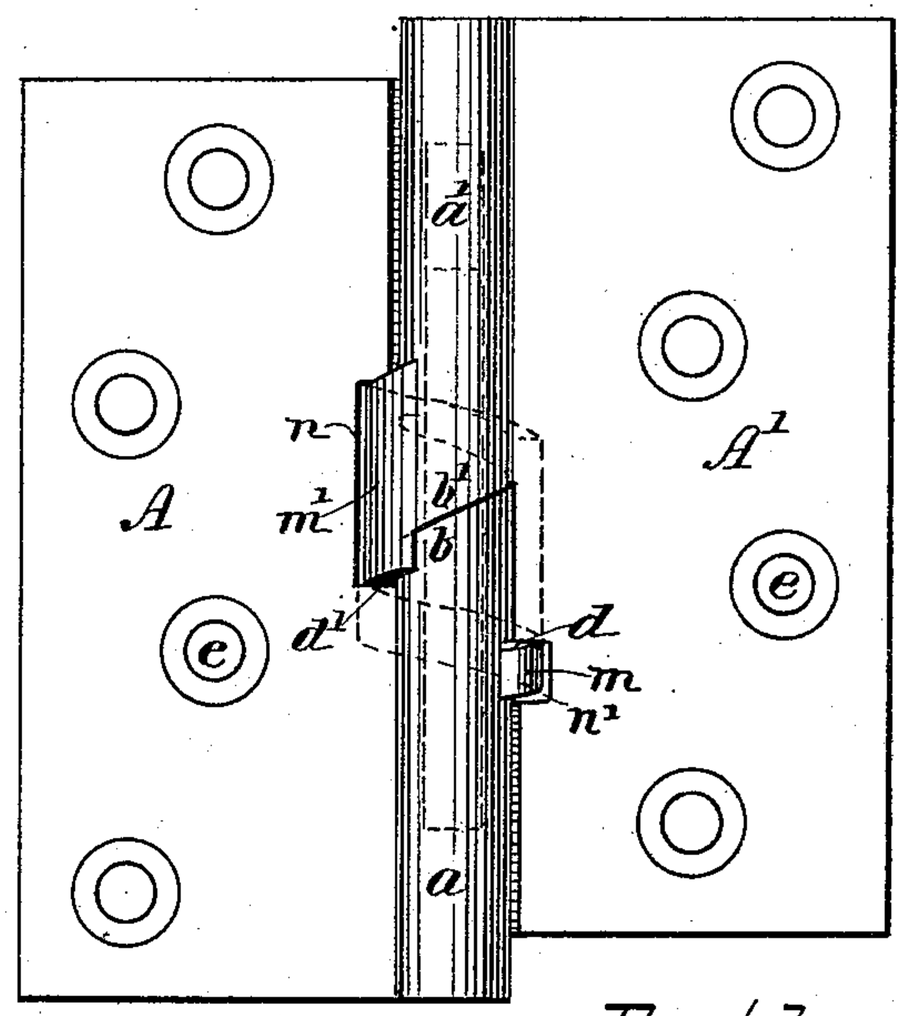

FIG. 1

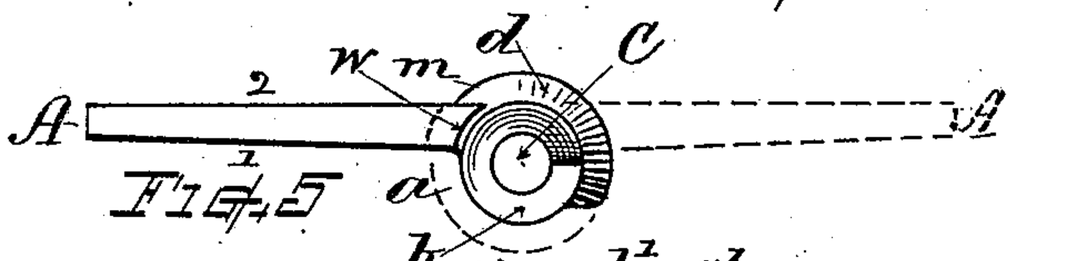

FIG. 5

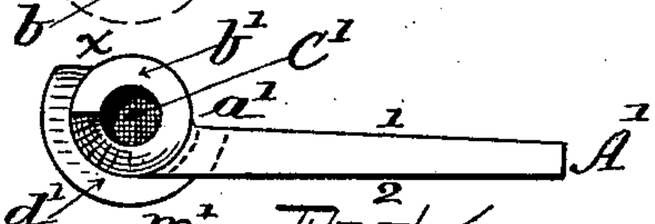

FIG. 6

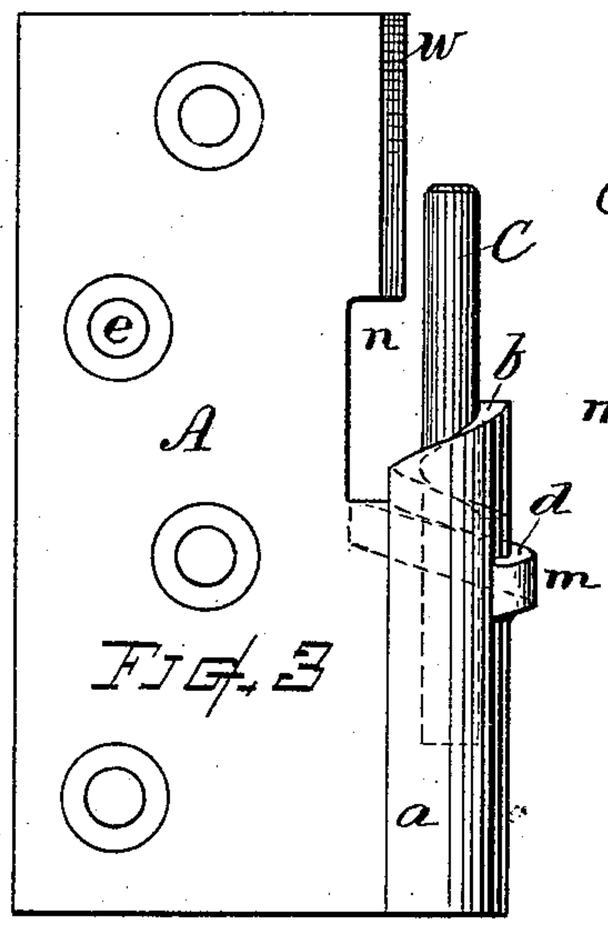

FIG. 3

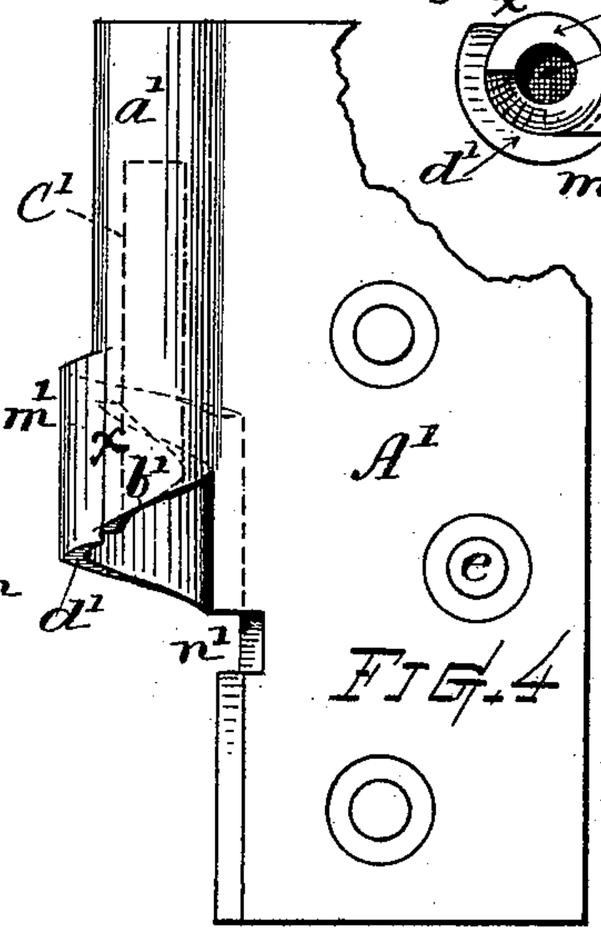

FIG. 4

Witnesses.

Charles A. Bacon

Spencer E. King

Inventors.

Frank R. Jones

Fred S. Dearborn

By Chas. A. Burleigh

Attorney.

UNITED STATES PATENT OFFICE.

FRANK R. JONES AND FRED S. DEARBORN, OF WORCESTER, MASSACHUSETTS.

HINGE.

SPECIFICATION forming part of Letters Patent No. 607,050, dated July 12, 1898.

Application filed March 1, 1898. Serial No. 672,147. (No model.)

To all whom it may concern:

Be it known that we, FRANK R. JONES and FRED S. DEARBORN, citizens of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Hinges for Doors, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

This invention relates to an improved construction of the hinging joint more especially designed and applicable for use in butt-hinges for hanging doors in residences and other buildings where no raised thresholds are employed and where it is desired to have the hinge impart a lifting action to the door as it opens and a descending action as it closes, so that the door can move free and clear above the floor or carpet when swung back and forth and then fit closely down to the floor when closed.

The object of our present invention is to provide a practical, desirable, and efficient hinge of the class specified and having its abutting joint-surfaces constructed and combined in a manner that will render the hinge durable and afford ample bearing for the scrolls and for their support at both sides of the axis when the hinging parts are at any relative position within the limit of their swing. We attain these objects by the specific construction hereinafter explained, and illustrated in the drawings, wherein—

Figure 1 is a face view of our improved butt-hinge when opened. Fig. 2 is a view in partially-opened position, the right-hand plate being shown in section. Figs. 3 and 4 respectively show the two parts of the butt separated. Fig. 5 is a top view of the joint-surfaces on the lower hub portion or supporting part; and Fig. 6 is a bottom view of the joint-surfaces on the upper hub portion or supported part—*i. e.*, the surfaces countermatching those of Fig. 5, but directly inverted.

Referring to the drawings, A and A′ indicate the two attaching plates or leaves of the hinge, perforated at *e* and respectively carrying the hubs or pintle-barrels *a* and *a′*, that abut upon each other at the central part of the hinge, and C indicates the pintle or center pin, fitted in the hub *a* and entering an axial bore C′ in the hub *a′* and forming the axis of the hinge. The face of the plate is at 1 and the back at 2.

The feature of this invention is the peculiar construction of the abutting portions of the hinging-joint, which are essentially composed of the inner helicoid bearing-scrolls *b b′* and outer helicoid bearing-scrolls *d d′*, said inner and outer scroll-surfaces being respectively arranged at different circumferential positions in adjacent concentric circles about the center or axis pin C; or, in other words, the hubs may be considered as composed of outer and inner cylindrical portions, each portion separately fitted with a helicoid end surface, as illustrated.

The abutting helicoid surfaces are formed to countermatch on the upper and lower hub parts, the surface *b′* seating and sliding on the surface *b* and the outer scroll-surface *d′* seating and sliding on the surface *d*, the helical pitch of the inner and outer bearing-surfaces being the same, or so as to give the same longitudinal movement to the hub or barrel *a′* as the hinge is opened and closed. The inner scrolls *b b′* comprise a full helical circle; but the outer scrolls *d d′* comprise something less than a complete circle, so that the two parts of the butt can be separated or lifted off by endwise movement of the part A′ when the hinge is partially opened, say, at the position indicated in Fig. 2, the space *x* passing up by the edge *w* without interfering.

In the present instance the body on which the outer bearing-scroll is formed is made to project beyond the circumference of the end of the barrel or hub, as at *m* and *m′*, and the plate A is recessed, as at *n*, and the plate A′, as at *n′*, for accommodation of the protuberant portions as the parts swing on their axis.

In some instances the hinge may be made with the entire length of the hubs *a a′* of the same diameter as that of the larger portion *m*, the joint-surfaces at *b* and *d* being substantially the same as here shown.

By constructing the hinge as described,

with the combined outer and inner helical bearing-surfaces *d d'* and *b b'*, we produce a hinge suitable for house-doors, and, furthermore, the hinge is desirable and efficient, the wear of the joint is rendered more uniform, and support is given at both sides of the center. The bearing-contact and wear is distributed so that the surfaces tend to wear themselves into proper seating contact instead of out of proper shape. The structure is also such that the two parts can be readily unhinged as a separable door-butt.

We are aware that various different kinds of hinges have heretofore been devised embracing the principle of a screw action for effecting a lifting and dropping motion on one part as the hinge is opened and closed. It will therefore be understood that we do not herein broadly claim such feature in a hinge.

What we claim as of our invention, and desire to secure by Letters Patent, is—

A separable hinge composed of suitable attaching-plates having hubs *a a'* embracing the axial pintle, the abutting ends of said hubs formed for countermatching in a scroll-joint, and consisting of the inner helicoid bearing-scrolls *b b'*, and outer helicoid bearing-scrolls *d d'* disposed in adjacent concentric circles about the axial pintle with the respective inclines of said inner and outer scrolls arranged at different portions of the circle, and affording bearing-contact at opposite sides of the axis or center pintle, substantially as set forth.

Witness our hands this 26th day of February, 1898.

FRANK R. JONES.
FRED S. DEARBORN.

Witnesses:
CHAS. H. BURLEIGH,
ELLA P. BLENUS.