No. 629,185. Patented July 18, 1899.

W. B. ARNOLD.

HINGE.

(Application filed Jan. 19, 1899.)

(No Model.)

Fig: 1.

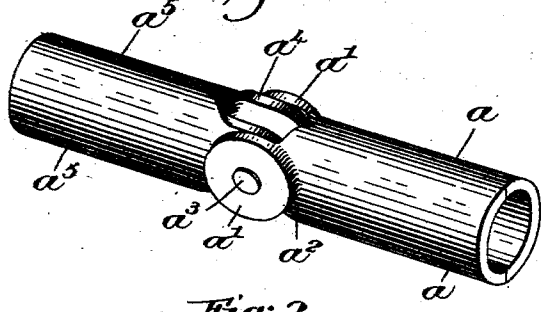


Fig: 2.

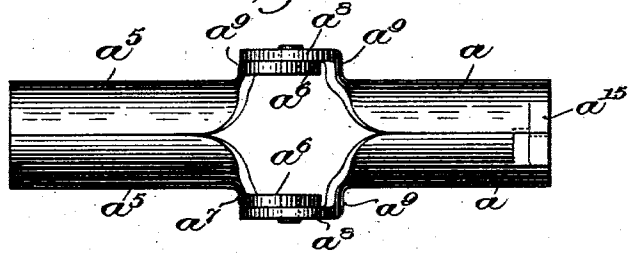


Fig: 3.

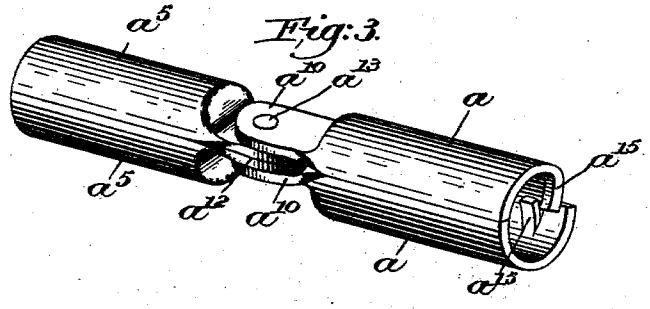
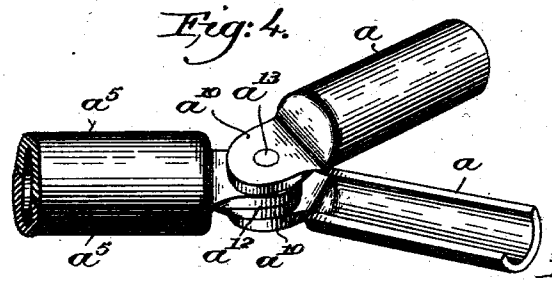


Fig: 4.



Witnesses,
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM B. ARNOLD, OF ABINGTON, MASSACHUSETTS.

HINGE.

SPECIFICATION forming part of Letters Patent No. 629,185, dated July 18, 1899.

Application filed January 19, 1899. Serial No. 702,719. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. ARNOLD, of North Abington, county of Plymouth, and State of Massachusetts, have invented an Improvement in Hinges, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is a new hinge, and has for its object the provision of a hinge having the general shape and advantages of a plug or dowel like hinge, while being exceedingly cheap, strong, and light.

A number of different kinds of hinges have been proposed made on the general principle of pivoting together two dowels or sets of dowels, the dowels to be inserted in the wood of the material to be hinged together and secured therein; but the high cost of manufacture of these hinges as heretofore made has been practically prohibitive, and, besides this, being turned from solid metal they have been very heavy and cumbersome. I have invented a hinge of this general character which is exceedingly light and may be made with extreme accuracy at a very slight cost, so as to be within the reach of all desiring such a hinge, my invention in its preferred embodiment also possessing various other advantages which will be more fully pointed out in the course of the following detailed description, reference being had to the accompanying drawings illustrative of preferred embodiments of my invention, and the latter will be more particularly defined in the appended claims.

In the drawings, Figure 1 is a perspective view of one form of my hinge. Fig. 2 is a top plan view of a hinge of the same general character slightly modified. Fig. 3 is a perspective view of a further modification. Fig. 4 is a broken detail in perspective to be referred to.

Referring to the drawings, it will be seen that each of the hinges illustrated is made up of opposite pairs of leaves stamped or bent in semicylindrical shape, so as together to constitute a hollow plug or dowel like member of the hinge, the two members being pivotally joined together at their pintle or turning-point.

In Fig. 1 I have shown opposite leaves a, each of which is stamped or bent to the shape of a semicylinder, each leaf being provided at its inner end with an ear a', having a shoulder a^2, preferably formed on an arc of a circle concentric with the pintle a^3, and against the inner sides of these ears a' are similar ears a^4 of similar leaves a^5, excepting that said ears a^4 do not stand out beyond their leaves, as is the case at the shoulders a^2 of the inclosing ears a'.

In Fig. 2 the various parts are constructed the same as already described, excepting that instead of having the ears arranged just as stated I have offset the inner ears a^6, so as to provide shoulders a^7, and have correspondingly offset or separated the outer ears a^8, the shoulders a^9 thereof being considerably deeper than the shoulders a^2 of the form shown in Fig. 1, the shoulders a^7 a^9 acting as abutments to bear against the adjacent wood and act as self-centering devices for insuring that the pintles will be in accurate alinement when a number of the hinges are to be used together adjacent each other.

In my hinge the opposite leaves of each plug-like member constitute a single tube extending to the pintle-ears, these leaves being cut and stamped to form complementary parts of said tube and the two tubes when pivoted together at their ears forming a complete hinge; but I do not intend to restrict my invention to having both of the leaves of one tube precisely alike either in size or shape, excepting that when joined or formed together they shall make up one tube.

In Fig. 3 the ears a^{10} a^{12} are brought closely together and pivoted on one pintle a^{13}, this construction being preferable for the greatest strength and compactness, although sacrificing to some extent certain advantages possessed by the other forms of my invention already explained.

In view of the above description it will be readily understood that these hinges can be manufactured at very slight cost, the leaves being quickly and cheaply struck up out of sheet metal (steel, brass, or other metal) or material according to the use for which they are required and quickly assembled and riveted or otherwise hinged together.

In case the hinges are made truly cylindrical they can be secured in place simply by

boring a hole with an ordinary bit, and if they are made angular or other shape in cross-section they can be similarly secured by making the hole with any usual mortising-machine, the plug-like ends being then inserted and secured in place by a transverse pin or any other suitable means. In some situations, however, it is desirable that the leaves of these hinges should be incapable of turning independently on their pivots, as shown in Fig. 4, and accordingly I provide interlocking portions in any suitable manner to prevent the leaves from getting out of relative position, one form of such interlocking or holding device being shown in Figs. 2 and 3, where it will be seen that I have bent a tongue a^{15} inwardly at the edge of each leaf, said tongue being bent inwardly just sufficiently to lap over and against the opposite edge, as is clearly shown in Fig. 3, the result being that neither leaf can possibly shift on the other leaf.

I do not claim, broadly, a plug or dowel like hinge, inasmuch as I am aware that it is old; but my main endeavor has been to devise a hinge of this very desirable general character which shall be practical and commercially feasible, and the hinge herein disclosed meets all the essential requirements so far as known to me, inasmuch as these hinges can be made with exceeding rapidity and at very low cost, while being at the same time unusually strong, very light, and at the same time they possess all the accuracy and neatness afforded by the expensive turned hinge.

I do not limit my invention to the particular forms herein shown, inasmuch as very many other shapes, certain of which have been alluded to, and various modifications and changes may be resorted to within the spirit and scope of my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described hinge, comprising opposite hollow, plug or dowel like members, each consisting of independent oppositely-bent leaves terminating at their inner ends in ears, the several ears being lapped and pivoted together, certain of said ears being offset to provide shoulders projecting from the body of the plug-like member adjacent its inner end and means locking said oppositely-bent leaves against relative shifting movement, substantially as described.

2. A hinge, having hollow, plug or dowel like members pivotally connected at their inner ends, each of said members being composed of two leaves oppositely bent to form complementary parts of a single tube extending to adjacent the pintle and terminating in opposite ears, the several ears of the two opposite tubular parts being pivoted together, substantially as described.

3. A hinge, having hollow, plug or dowel like members pivotally connected at their inner ends, each of said members being composed of two leaves oppositely bent to form complementary parts of a single tube extending to adjacent the pintle and terminating in opposite ears, the several ears of the two opposite tubular parts being pivoted together, and certain of said ears being offset to provide projecting shoulders, substantially as described.

4. A hinge, having hollow, plug or dowel like members pivotally connected at their inner ends, each member being in the form of a single tube extending to adjacent the pintle and terminating in opposite ears, said several ears of the two opposite single tubular parts being overlapped and transversely pivoted together, and all of said ears being offset and circular in shape to provide shoulders for self-centering the hinge when in operative position, substantially as described.

5. A plug-hinge whose members are cylindrical in shape, said members containing leaves pivoted together at their inner ends and extending in opposite directions, one or more of said leaves being stamped or bent in semicylindrical form, substantially as described.

6. The herein-described hinge, having a member formed with opposite leaves extending from the hinge-pintle and stamped or bent in semicylindrical form, together constituting a tubular plug-like end, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM B. ARNOLD.

Witnesses:
EDWARD P. BOYNTON,
GRACE M. PORTER.