(No Model.)

E. VERPILLIER & C. W. GRAVES.

JOINT FOR DOLLS, &c.

No. 546,791. Patented Sept. 24, 1895.

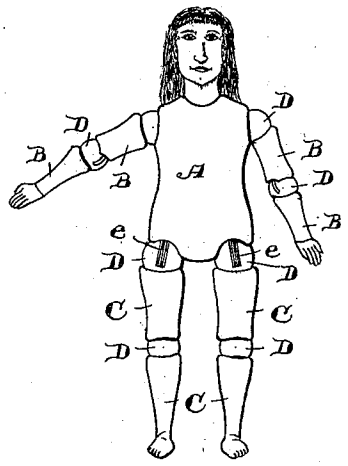

FIG. 1

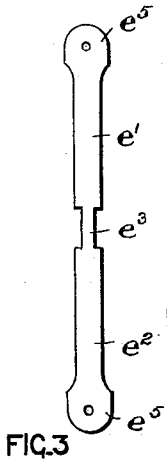

FIG. 3

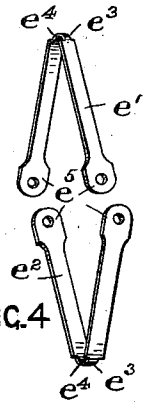

FIG. 4

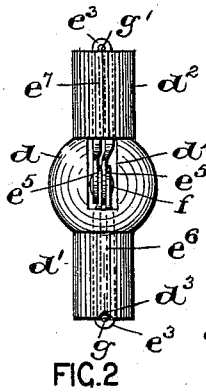

FIG. 2

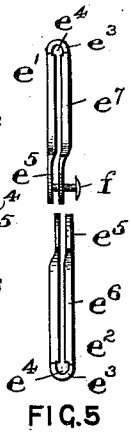

FIG. 5

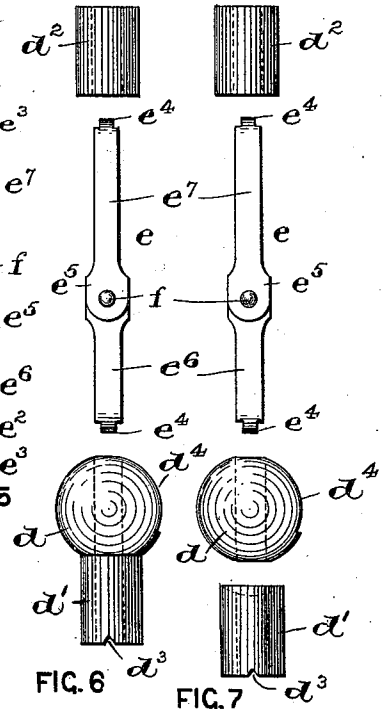

FIG. 6

FIG. 7

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JOINT FOR DOLLS, &c.

SPECIFICATION forming part of Letters Patent No. 546,791, dated September 24, 1895.

Application filed April 22, 1895. Serial No. 546,693. (No model.)

To all whom it may concern:

Be it known that we, EMIL VERPILLIER and CHARLES W. GRAVES, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Joints for Dolls, &c.; 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 has reference to dolls, and has for its primary object to provide a novel construction of joint for connecting any two parts of a doll together by means of a flexible rotary connection, whereby the limbs of the doll can be moved into any desired position in the manner of the movements of human beings, while at the same time any two of such connected parts of the doll are capable of a rotary movement about an extension or arm of a hinge-joint operatively arranged in a pierced sphere, which is also movably connected with a certain sleeve or sleeves adapted to be secured in the articulating members of the doll.

The invention therefore consists in certain novel arrangements and combinations of parts, such as will be hereinafter fully described, and finally embodied in the clauses of the claim.

In said drawings, Figure 1 is a front view of a doll provided with joints or connections embodying the nature of our present invention. Fig. 2 is a front view of the joint before it is secured in position in the limbs of the doll. Fig. 3 is a face view of a metal blank employed in the construction of a hinge-joint used in connection with the joint, and Fig. 4 are perspective views of two of said blanks partly bent in shape to form the members of said hinge-joint. Fig. 5 illustrates said two members in side view before they are pivotally connected by means of a suitable pin or a rivet. Fig. 6 is a detail view of the several parts comprising the joint, illustrating the hinge-joint, a sleeve, and a combined sphere and sleeve; and Fig. 7 is a similar view of these parts comprising the hinge construction, but being of a slightly-modified form of construction.

Similar letters of reference are employed in each of the above-described views to indicate like parts.

In United States Patent No. 487,861, dated December 13, 1892, granted to Emil Verpillier, is shown a joint construction consisting of a ball-and-socket joint connected with certain sleeves secured in the articulating members of a doll. In the present construction we have dispensed with the parts forming the ball-and-socket joint, using in lieu thereof a construction of hinge-joint in a pierced and slitted sphere to produce simplicity and hence cheapness of construction, durability, adaptability to the members of the doll, easiness of adjustment and repairs, and, lastly, a superior and operative joint or connection for the purpose stated.

In the drawings, A indicates the body or trunk of a doll or other figure. B represents the arms, and C the legs.

The main feature of our present invention is the construction of a flexible rotary joint or connection D to be used in connecting any two parts—as, for instance, the two arm portions B, or an arm portion B with the trunk A, or the trunk A with a leg portion C, or any two leg portions C, as will be clearly evident from the accompanying drawings.

Our novel form of joints D, which are alike in all instances, comprise therein a hinge-joint *e*, (see Figs. 6 and 7,) made of two pieces e' and e^2, preferably stamped from sheet metal in the shape shown in Fig. 3 and folded in the middle at e^3, as shown in Figs. 4 and 5, to form loops e^4. The ends e^5 of said pieces e' and e^2 are suitably perforated, and when the parts are slipped together, as clearly indicated in Figs. 2 and 5, a pin or rivet *f* is firmly arranged in said perforated ends e^5 in order to form an articulation or double-jointed hinge-joint *e*, as will be clearly understood. Thus it will be seen that the doubled-over pieces e' and e^2, respectively, form arms of articulation e^6 and e^7 of the said hinge-joint. Said arm e^6 is now inserted in a pierced sphere *d*, finished or terminated by a sleeve d', formed integral therewith, as in Fig. 6, or it may be an independent sleeve, as shown in Fig. 7, said parts being fastened together by means

of a suitable pin g or any other suitable fastening, which is passed through the loop e^4 on the end of said arm e^6, extending beyond the lower surface of said sleeve d', as clearly indicated in Fig. 2. The other arm e^7 of the hinge-joint e is inserted in the sleeve d^2, the loop e^4 on said arm e^7 extending beyond the upper surface of said sleeve and being fastened by a pin g' or any other suitable fastening device. In this manner the complete joint or connection D is formed, the sleeve d^2 being rotatively arranged on the arm e^7, while the other arm e^6 is fixed in the sphere d and the sleeve d' by the pin g being arranged in a recess or notch d^3 in said sleeve d', as clearly indicated in Fig. 2, which prevents the turning of these parts, as will be clearly evident.

The pierced sphere d, which may be made of wood, metal, or any other suitable material, is provided with a lateral cut or slit d^1 to permit the pivotal motion of the arm e^7 around the center of articulation of the hinge-joint e, giving the upper parts of the joint a movement of ninety degrees, or approximately so. The sleeves d' and d^2 are now glued or otherwise secured in the hollow members or limbs of the doll, connecting any two parts of the doll in the manner as has been previously stated. Thus it will be seen that any two connected parts of the doll can be moved and any position of the limbs can be obtained on account of the pivotal movement of the arms e^6 and e^7 on their center of articulation and the arrangement of the rotary sleeve d^2 on said arm e^7. The end portions e^5 of said pieces e' and e^2, constituting the center of articulation, are doubled in order to present a quadruple thickness and riveted together at that point, as shown, which adds to the strength and durability of the joint. Furthermore, the construction and arrangement of the parts at the point of articulation of the hinge-joint e are such that the arms e^6 and e^7 move in an arc of ninety degrees, or approximately so, and thereby act as a stay in order to prevent the limbs of the doll from doubling on themselves.

Having thus described our invention, what we claim is—

1. A joint for dolls or the like, consisting, essentially, of a pierced sphere having a slit, a hinge-joint in said sphere inclosing the point of articulation of said joint and presenting said slit for the movement of one of the arms of articulation of said joint, and a sleeve rotatively arranged on one of said arms of the hinge-joint, substantially as and for the purposes set forth.

2. A joint for dolls or the like, consisting, essentially, of a pierced sphere having a slit, a tubular post or sleeve connected with said sphere, a hinge-joint in said sphere inclosing the point of articulation of said joint and presenting said slit for the movement of one of the arms of articulation of said joint, a sleeve rotatively arranged on one of said arms of the hinge-joint, and means for securing the tubular post or sleeve connected with the sphere in a fixed position on said other arm of articulation of the hinge-joint, substantially as and for the purposes set forth.

3. A joint for dolls or the like, consisting, essentially, of a pierced sphere having a slit, a hinge-joint, comprising therein, doubled portions e' and e^2, forming arms e^6 and e^7 respectively, having perforated ends e^5 and a pin or rivet for securing them together, to form a quadruple joint of articulation, said sphere inclosing the point of articulation of said joint and presenting said slit for the movement of one of the arms of articulation of said joint, and a sleeve rotatively arranged on one of said arms of the hinge-joint, substantially as and for the purposes set forth.

4. A joint for dolls or the like, consisting, essentially, of a pierced sphere having a slit, a tubular post or sleeve connected with said sphere, a hinge-joint, comprising therein, doubled portions e' and e^2, forming arms e^6 and e^7 respectively, having perforated ends e^5 and a pin or rivet for securing them together, to form a quadruple joint of articulation, said sphere inclosing the point of articulation of said joint and presenting said slit for the movement of one of the arms of articulation of said joint, a sleeve rotatively arranged on one of said arms of the hinge-joint, and means for securing the tubular post or sleeve connected with the sphere in a fixed position on said other arm of articulation of the hinge-joint, substantially as and for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 19th day of April, 1895.

EMIL VERPILLIER.
CHARLES W. GRAVES.

Witnesses:
FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.