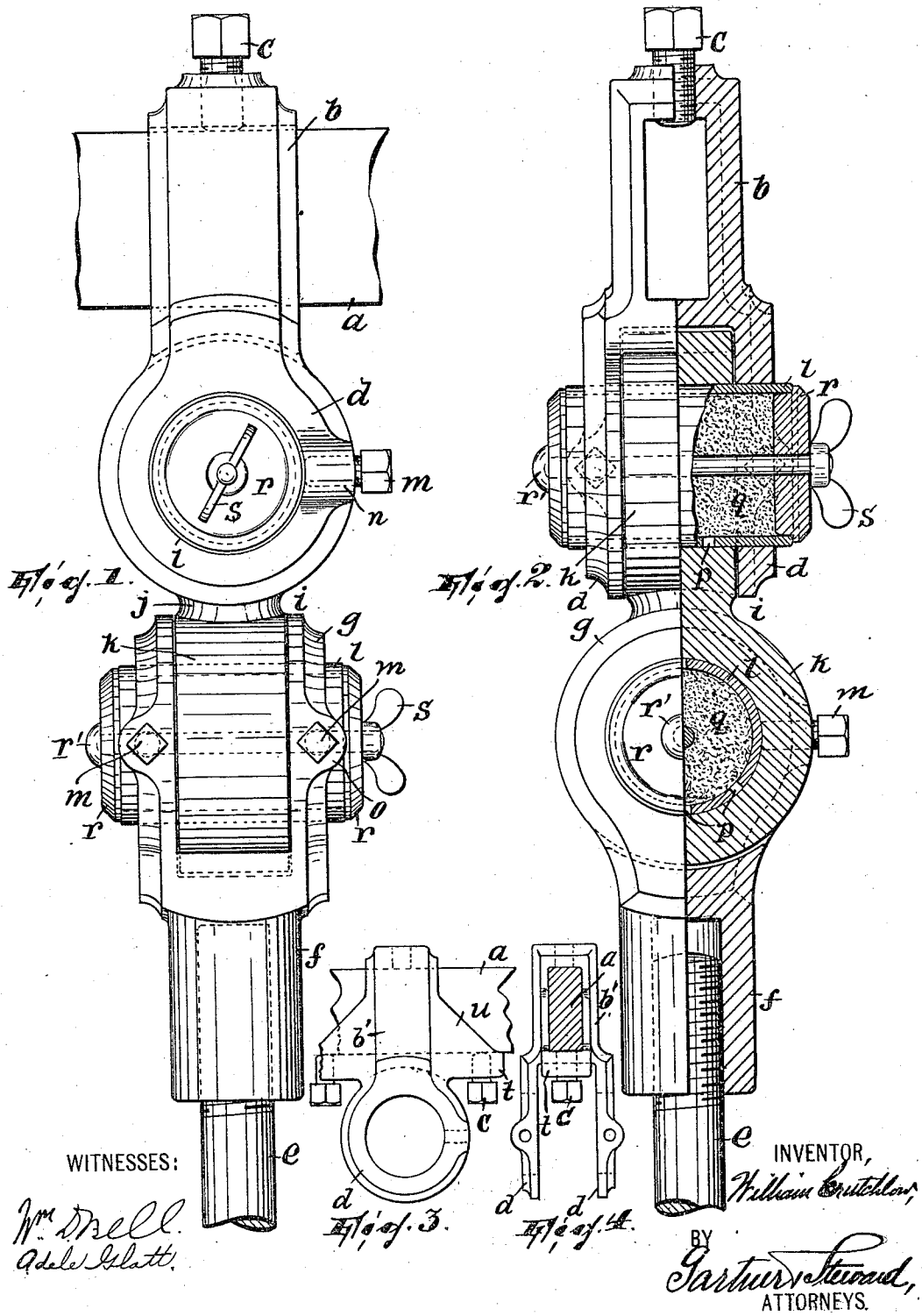
No. 837,200. PATENTED NOV. 27, 1906.

W. CRUTCHLOW.

KNUCKLE JOINT.

APPLICATION FILED JAN. 30, 1906.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM CRUTCHLOW, OF PATERSON, NEW JERSEY.

KNUCKLE-JOINT.

No. 837,200. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed January 30, 1906. Serial No 298,712.

To all whom it may concern:

Be it known that I, WILLIAM CRUTCHLOW, a citizen of the United States, residing in Paterson, county of Passaic, State of New Jersey, have invented certain new and useful Improvements in Knuckle-Joints; and I 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.

My invention relates to flexible connections, known in the art as "knuckle-joints," between the actuating-levers for jacquard-machines and the cranks from which said levers are moved. These devices ordinarily comprise in the more recent development of the art three members pivotally connected together in such manner that the end members stand in intersecting planes, the parts which form the pivots being separable or detachable.

My invention is an improvement on the knuckle-joint disclosed in my United States Letters Patent No. 797,267, and has for its object to make the pivot parts therein referred to cylindrical shells instead of solid bodies, whereby lightness without decreased strength is produced and cavities are formed for the reception of a lubricant, whereby to automatically maintain the articulating parts constantly lubricated.

In the accompanying drawings, Figure 1 is a side view of one form of my improved knuckle-joint. Fig. 2 is a view, partly in front elevation and partly in vertical central section, of the knuckle-joint seen in Fig. 1; and Figs. 3 and 4 are side and front views of a modified form of a part of the knuckle-joint.

a represents a jacquard-lever, and *b* the loop portion fitted onto said lever and adjustably secured thereto by a set-screw *c* of one of the end members of the knuckle-joint. *d* is the forked or bifurcated portion of said member, the same being, as shown, in the form of two spaced disks standing parallel to each other.

e is a rod which may be connected with a suitable rotating crank of the loom and which is screwed into the tubular portion *f* of the other end member of the knuckle-joint, said other end member also having a forked portion *g* like the forked portion *d* of the first-mentioned end member.

i is the intermediate or connecting member, the same comprising a short neck *j* and two thick disks *k*, arranged at right angles to each other and disposed in the forked portions of the end members.

l is a cylindrical shell of relatively large diameter which penetrates the disks *d* and *k* on the one hand and the disks *g* and *k* on the other, serving as the pivot part in each instance. This shell may be kept in place by one or more set-screws *m*, preferably mounted in enlargements *n* and *o*, respectively, of the disks *d* and *g*.

It is preferred that the device be self-lubricating. To this end the shell *l* is in each instance provided with one or more orifices *p*, opening into the bore of the disk *k*, and said shell contains an absorbent holder *q* for oil or other lubricant. The lubricant-holder *q* may be kept in place in the shell by two plugs *r*, set in the ends of the shell and held against outward displacement by a bolt *r'*, having a wing-nut *s*.

In the modified form of the end member of the knuckle-joint which is directly carried by the lever *a*, instead of the set-screw *c* being set in the top of the loop *b'* the latter is formed with a lug *t*, adapted to stand opposite the under side of the lever *a* and reinforced by integral webs *u*, and in this lug the set-screw is mounted. This construction renders the set-screw more accessible in adjusting. Preferably, as shown, the parts *t* and *u* are duplicated and a set-screw *c* arranged in each lug *t*.

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

1. In a knuckle-joint, the combination of two substantially similar end members disposed in intersecting planes and each having a forked portion, an intermediate member having its extremities received by the forked portions of said end members, each of said forked portions and the part of said intermediate member received thereby having alined openings of relatively large diameter, and relatively thin-walled cylindrical shells each arranged in a set of said alined openings and forming the bearing between said intermediate member and the corresponding end member, each shell snugly fitting said openings, substantially as described.

2. In a knuckle-joint, the combination

two substantially similar end members disposed in intersecting planes and each having a forked portion, an intermediate member having its extremities received by the forked portions of said end members, each of said forked portions and the part of said intermediate member received thereby having alined openings of relatively large diameter, relatively thin-walled cylindrical shells each arranged in a set of said alined openings and forming the bearing between said intermediate member and the corresponding end member, each shell snugly fitting said openings and having a lubricant-orifice, and a lubricant-holder contained in each shell, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of January, 1906.

WILLIAM CRUTCHLOW.

Witnesses:
ALFRED GARTNER,
WM. D. BELL.