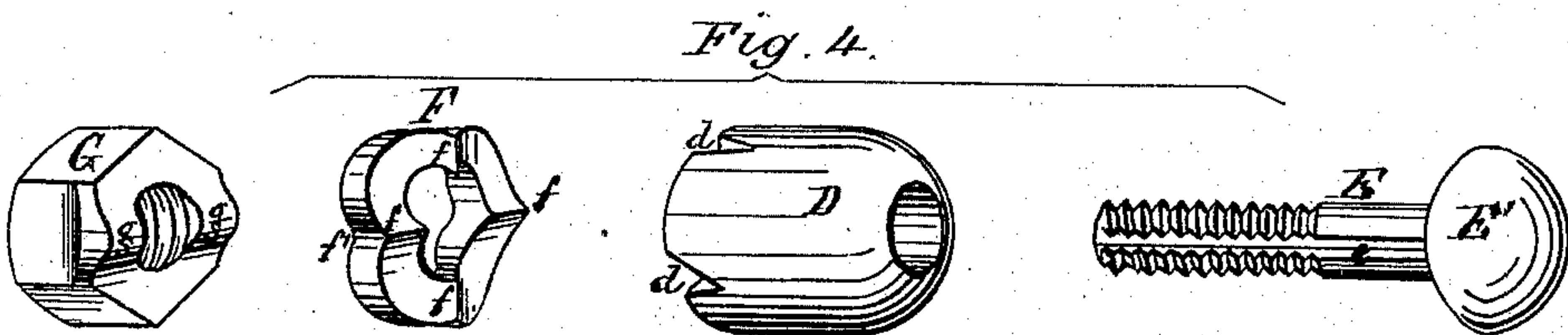
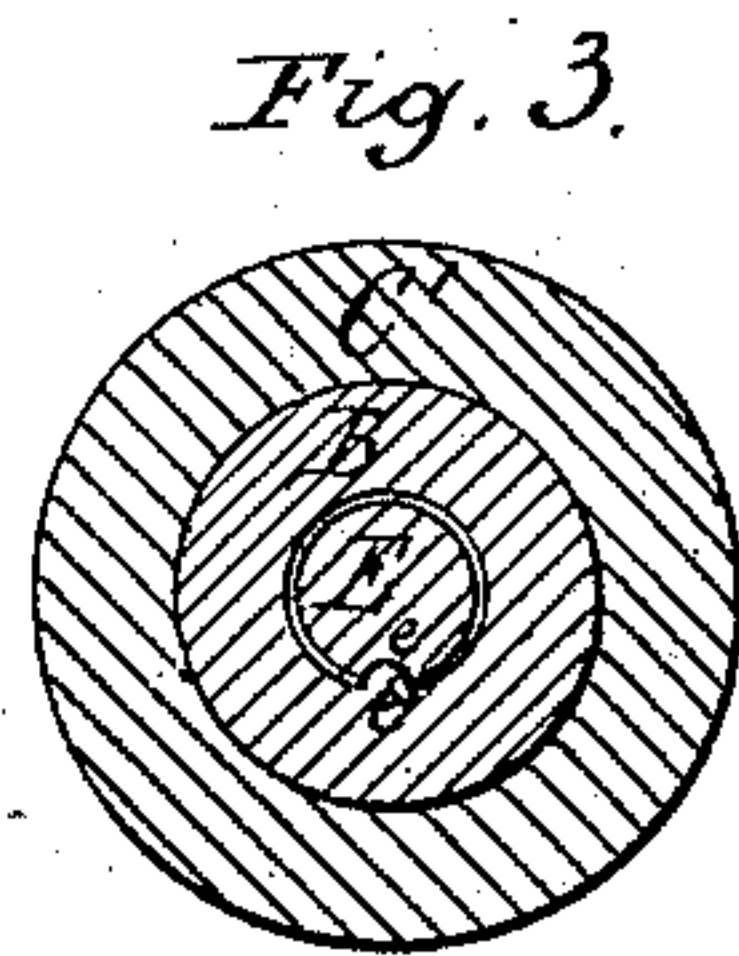
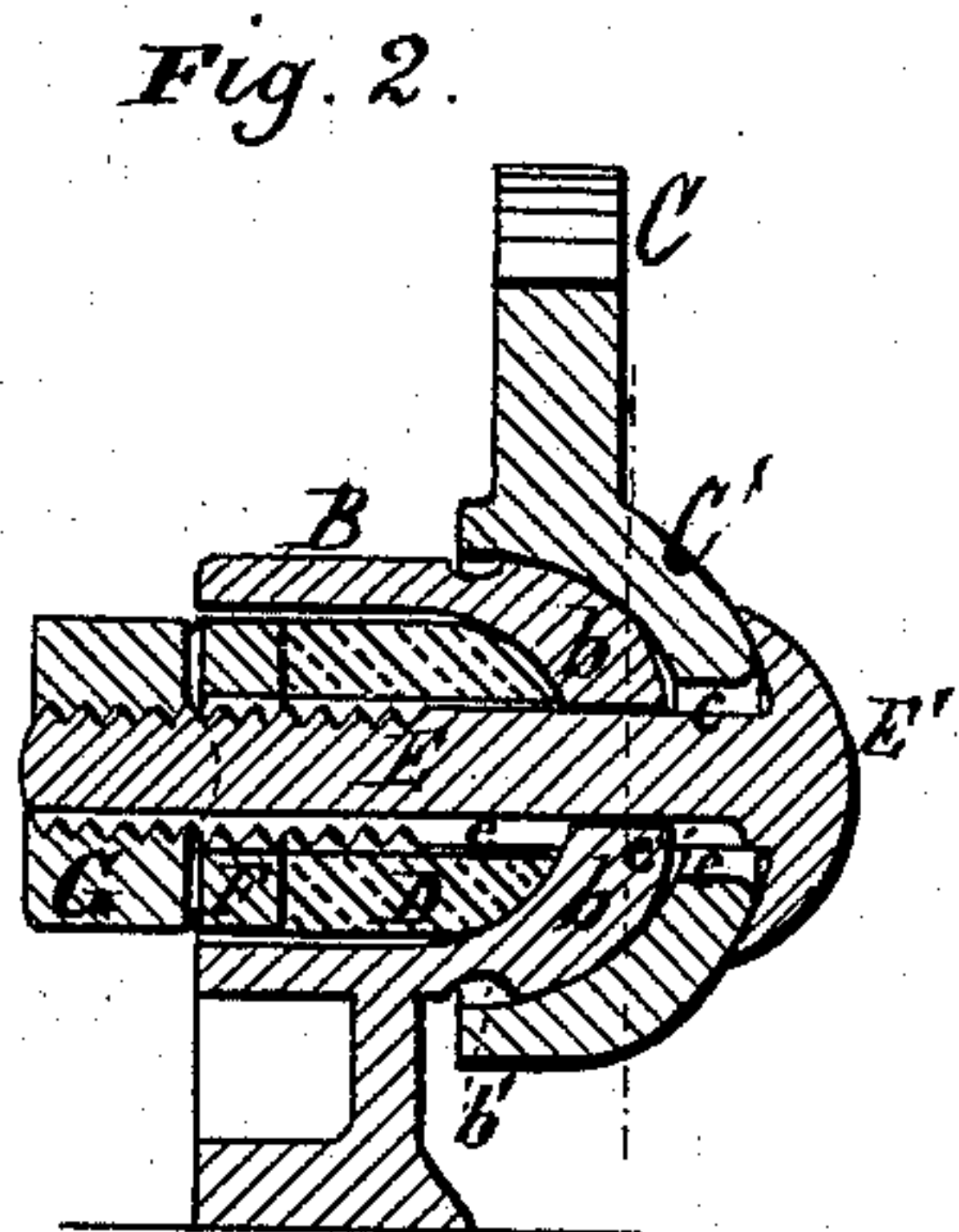
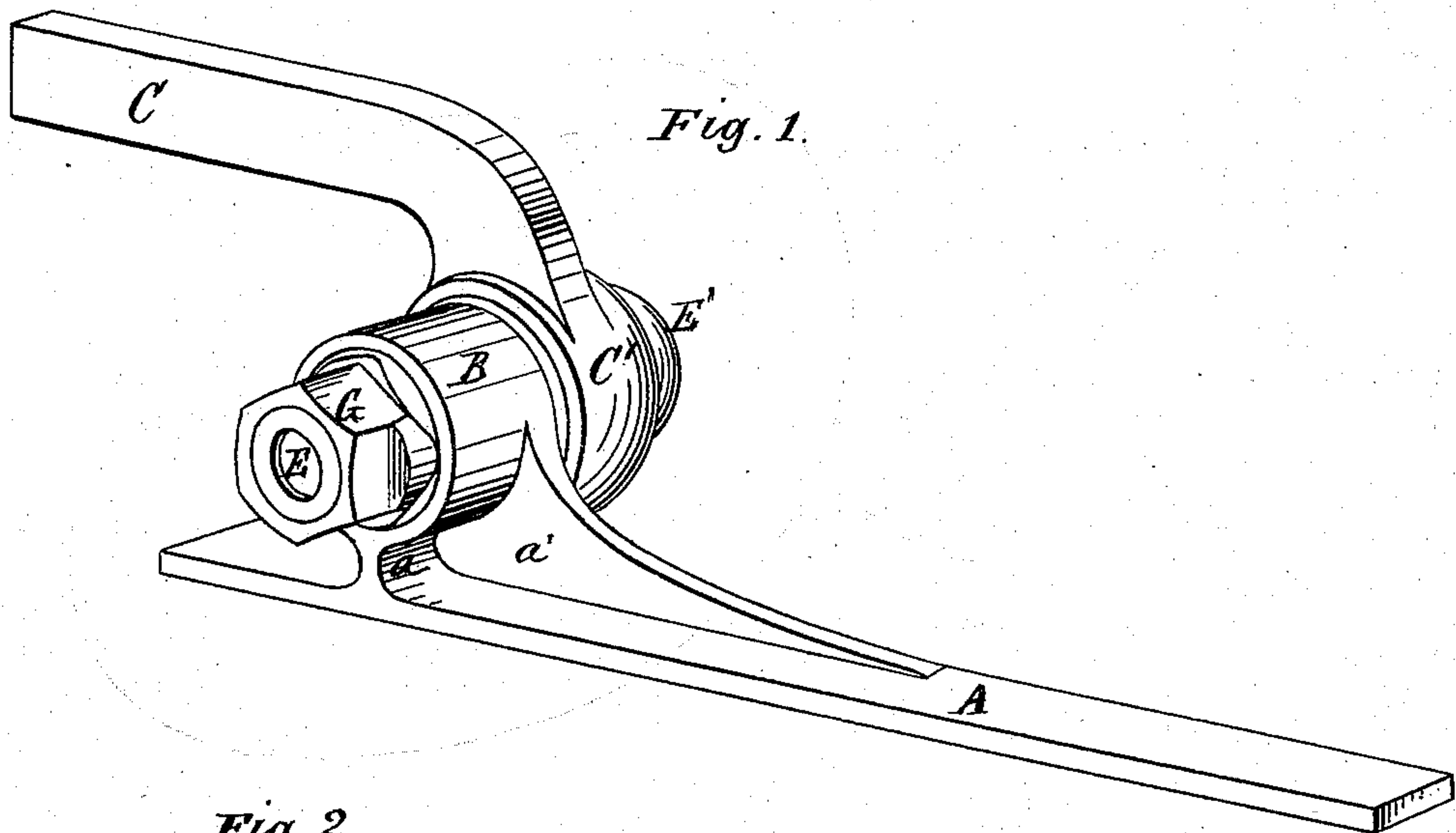


C. M. YOUNG.
Pitman-Connections.

No. 156,689.

Patented Nov. 10, 1874.



Witnesses.
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CHARLES M. YOUNG, OF MEADVILLE, PENNSYLVANIA.

IMPROVEMENT IN PITMAN-CONNECTIONS.

Specification forming part of Letters Patent No. 156,689, dated November 10, 1874; application filed September 21, 1874.

To all whom it may concern:

Be it known that I, CHARLES M. YOUNG, of Meadville, county of Crawford, State of Pennsylvania, have invented certain new and useful Improvements in Pitman-Connections, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1 is a perspective view of my improved pitman-connection, represented as applied to the head of a sickle-bar of a harvesting-machine. Fig. 2 is a vertical transverse section through the same. Fig. 3 is a vertical section on the line *x x*, Fig. 2; and Fig. 4 shows perspective views of the bolt, spring, wave-washer, and nut detached.

Similar letters of reference denote corresponding parts wherever used.

The invention relates to that class of pitmen more especially adapted for use in harvesting-machines for driving the sickle-bar, and will be described with reference to such application, though it will be apparent from the construction hereinafter described that it may be applied with advantage to other classes of machinery.

The invention consists in providing the pitman end with a hollow semi-spherical cup, adapted to fit a correspondingly-shaped wrist or pin formed on the sickle-head, or other device to which the pitman is to be applied, said wrist being made also in cup or hollow hemispherical form, and adapted to inclose and confine a spring and wave-washer, and all united by a through-bolt and wave or lock nut, as hereinafter fully set forth.

The object of this construction will be understood from the following description with reference to the drawings, in which—

A represents the sickle-bar or other device to which the pitman is to be applied. Upon the end of this bar, to which the pitman is to be connected, is formed an upright, *a a'*, terminating in a hollow cylindrical head, B, which at one end is closed, except a through perforation for a bolt, by a concavo-convex web, *b*, the convex face being outward, as shown in Fig. 2. At the junction of this hemispherical end *b* with the cylinder B a groove, *b'*, is cut in the periphery of the head, which facilitates

the oiling of the pitman-joint, and also serves to permit additional freedom of movement of the pitman on its joint, as hereinafter explained. The pitman represented at C is provided on its end with a hollow hemispherical cup, C', conforming on its inner concave face to the outer convex face of the end *b* of the head B, and fitting snugly thereon. Within the hollow cup-shaped head B is placed a rubber spring, D; or it may, if preferred, be a helical metal spring surrounding the through-bolt E, and adjoining this spring, and also within, or partly within and inclosed by, the cylindrical head B is a wave-washer, F, provided on its inner face with wave projections or spurs *f*, which match in or form corresponding V-shaped cavities *d* in the adjacent face of the rubber spring D. The bolt E has a longitudinal groove formed or cut upon one side at *e*, said groove matching a spur or rib, *e'*, formed at one side of the bolt-hole through the head B, thereby feathering the bolt to the head, and preventing it from turning, but permitting a free end movement of the bolt, and the inner face of the head E' is made concave (though this is not essential) to match the concave face of the pitman-cup C', as shown in Fig. 2, for facilitating the rocking or rolling of said pitman upon the sickle-head, to avoid cramping of the parts, and the bolt thus formed passes through the pitman-head C', sickle-head B, spring D, wave-washer F, and is secured in place by the nut G, the inner face of which is provided with wave projections *g*, which engage with corresponding depressions *f'* in the adjacent face of the wave-washer F, which, in connection with the spring D and the feathering of the bolt to the sickle-head, serve effectually to lock the nut, and to prevent any rotation of the bolt, washer, and nut relatively to the head B. The bolt perforation at *e*, through the pitman end C', is enlarged sufficiently to allow any required vibration of the sickle-head and pitman relatively to each other on their longitudinal axes, to prevent cramping, and to permit the changing of the angle of presentation of the cutters, while the spring D serves to keep the pitman-head C' at all times closely drawn upon its pivotal bearing *b*, thereby compensating for wear, preventing the parts from becoming loose, and obviating

the objectionable rattling or pounding common to pitmen as ordinarily constructed in this class of machines after brief use. Another advantage of this construction is, that the spring D is confined, and thereby prevented from expanding, and consequent rapid deterioration in strength, while at the same time it is protected from the weather, which in out-of-door machinery speedily effects the destruction of rubber springs exposed thereto, and hence a greatly-increased durability is secured.

I am aware that a hemispherical joint is not new in pitman-connections, and that springs have been used between the sickle-head and pitman for keeping these parts together, and compensating for wear; also, that yielding through-bolts have been employed for uniting a pitman, sickle-head, and a spring, which permitted the bolts to yield or to draw the parts together in compensating for wear. I am also aware that lock-nuts are not new; and I, therefore, do not claim these parts separately nor apart from the arrangement herein specified, in which the relation of the parts is such as to not only compensate for wear between the parts of the hemispherical joint, while permitting a freedom of movement of said parts re-

sembling in degree the action of a universal joint, but at the same time the spring and locking devices essential to accommodate these movements, and to prevent their accidental displacement when in use, are effectually covered and guarded from the injurious effects incident to the exposure and out-of-door use to which this class of machines is necessarily subjected.

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

1. The hollow convex sickle-head B and concave pitman end or cup C', in combination with the spring D, inclosed within the hollow head B, and the yielding through-bolt E, arranged and operating as described.

2. The feathered through-bolt E, applied to the hollow pitman-joint B C', constructed as described, in combination with the inclosed spring D, wave-washer F, and locking-nut G, all combined and operating as described.

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Witnesses:

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