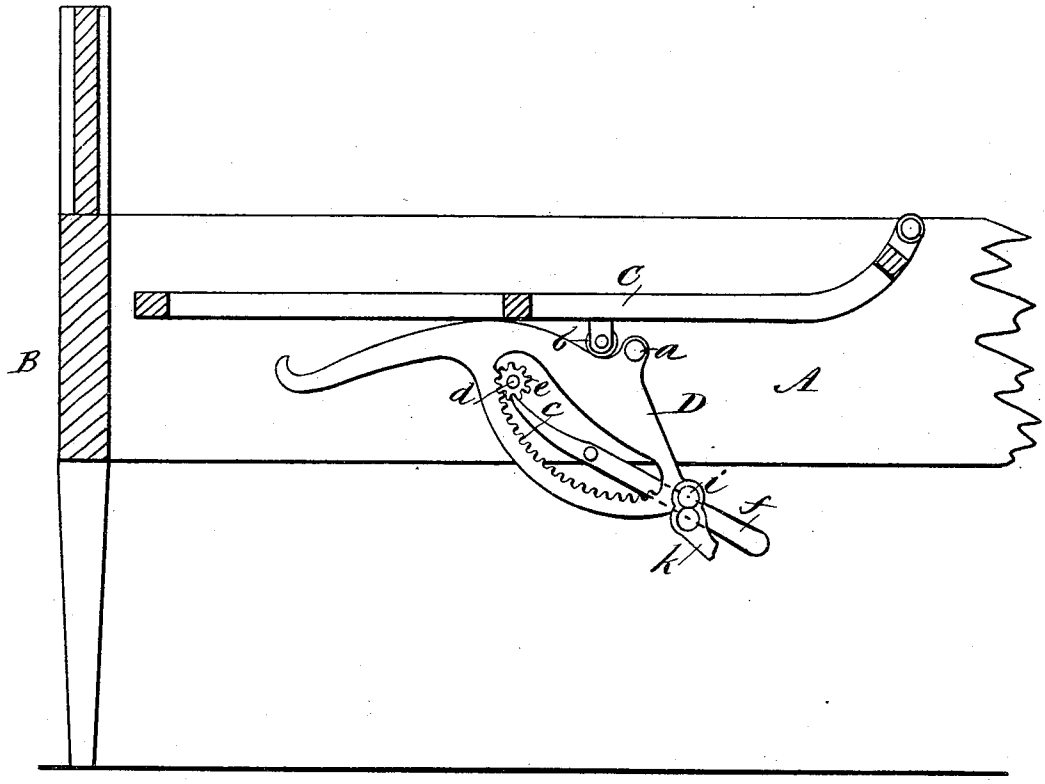
(No Model.)

A. J. GOODWIN.

INVALID BEDSTEAD.

No. 249,924. Patented Nov. 22, 1881.



WITNESSES:

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N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

ASAHEL J. GOODWIN, OF BROOKLINE, MASSACHUSETTS.

INVALID-BEDSTEAD.

SPECIFICATION forming part of Letters Patent No. 249,924, dated November 22, 1881.

Application filed March 10, 1881. (No model.)

To all whom it may concern:

Be it known that I, ASAHEL J. GOODWIN, of Brookline, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Invalid-Bedsteads, of which the following is a specification.

My improvements relate to the devices used for raising and lowering the hinged sections of invalid-bedsteads, and have for their object to obtain great power by conveniently-operated mechanism.

The invention consists in a rack and pinion combined with a cam on which the hinged section is supported; also, in a pawl for retaining the parts in position against downward pressure, all as hereinafter described and claimed.

The accompanying drawing is a sectional side view of the head portion of a bedstead having my invention applied.

A is the side rail, B the head-board, and C the hinged or pivoted section of the bed-bottom, which may be of any suitable construction.

D is the cam, hung on a stud, *a*, or shaft that is attached to the rail A, and having its upper side made of suitable shape. *b* is a friction-roll attached to section C and resting on the cam D. The central portion of the cam D is cut out or slotted, and the outer side of the slot is formed as a rack, *c*, curved in the arc of a circle, having its center at the stud or shaft *a*.

In the rail A is fitted a short arbor or shaft, *d*, on which is fixed a pinion, *e*, that meshes with the rack *c*. Outside the rail the arbor *d* is formed to receive a crank-handle. A pawl, *f*, hung on rail A, engages the pinion *e* in a manner to prevent backward movement of the pinion by pressure on the cam.

It will be seen that power applied to turn the pinion is exerted on the cam at a distance from the center, so that when the section is first moved, the roller *b* being near the stud *a*, the greatest power is exerted to raise it. Then, as the cam rises, the roller moves outward on the cam, and the motion increases in rapidity proportionate to the decrease of weight on the cam occurring by increased inclination of the section C.

At the heel of the cam there is a stud or pin, *i*, having an enlarged head for connection of the rod *k*, that passes in the usual manner to the cam that acts on the lower or foot section of the bed, as shown and described in my application for a patent on invalid-bed, filed December 18, 1880, so that both sections shall, when foot is depressed, be moved simultaneously.

By connecting the rod *k* directly to the cam, instead of to an arm on a cross-shaft carrying the cam, the mechanism is rendered more simple and convenient.

There may be two cams, D, placed on a cross-shaft for raising the section C.

I do not limit myself to the rack formed at the inside of a slot in a cam, as it may be at the outer edge of the cam, and the pinion placed to correspond.

It will be observed that the greatest power is obtained exactly where it is needed—namely, at the first movement, and when the whole weight is directly upon the eccentric. As the bed rises the weight lessens necessarily, and, less power being then needed, the devices are arranged to act more rapidly. During the movement the friction-roll *b* crosses the line of the pinion *e*, thus actually changing the order of the leverage.

What I claim as new is—

1. As an improvement in means for raising the hinged sections of invalid-bedsteads, the eccentric lever D, formed with rack *c* and pinion *e*, in combination with the hinged section C, provided with friction-roll *b*, substantially as shown and described.

2. The combination, with the hinged section C, of eccentric D, pinion *e*, rack *c*, pawl *f*, and friction-roll *b*, the latter fixed on the section and bearing on the eccentric, substantially as and for the purpose set forth.

ASAHEL JEWEL GOODWIN.

Witnesses:

GEO. D. WALKER.

C. SEDGWICK.