Oct. 17, 1933. H. MÜLLER 1,931,446

CASTER

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Fig. 1.

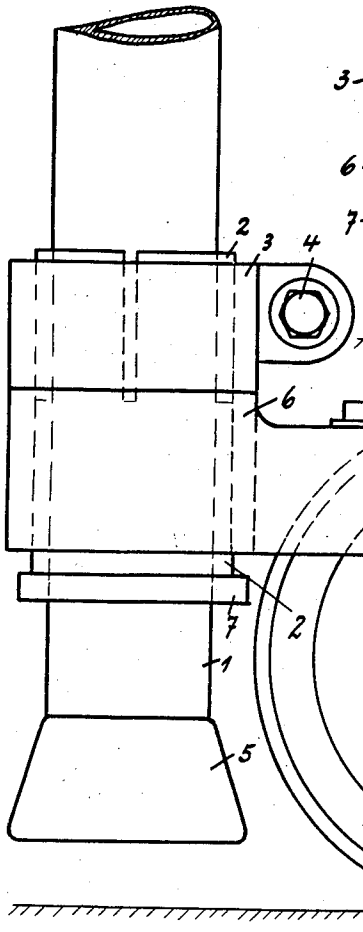
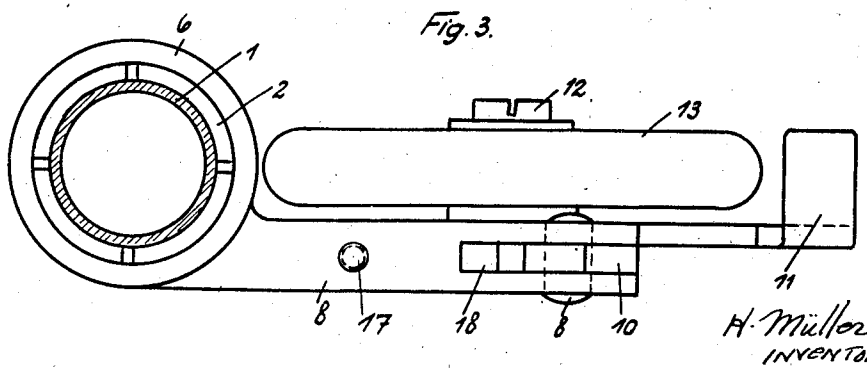


Fig. 2.

Fig. 3.



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Fig. 4.

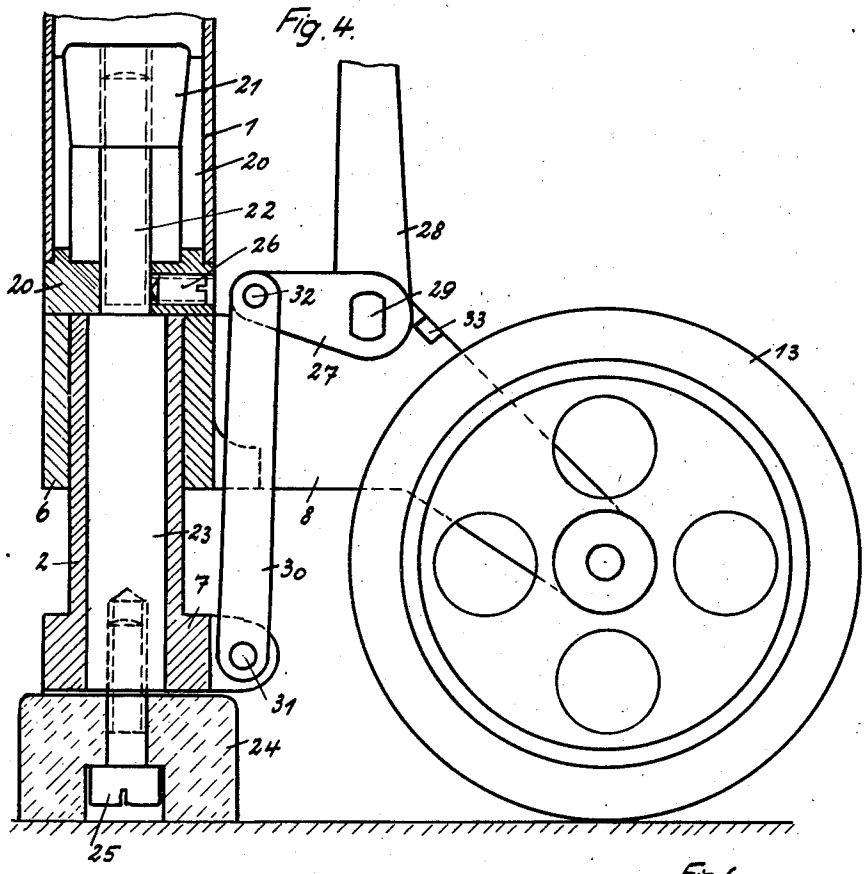


Fig. 5

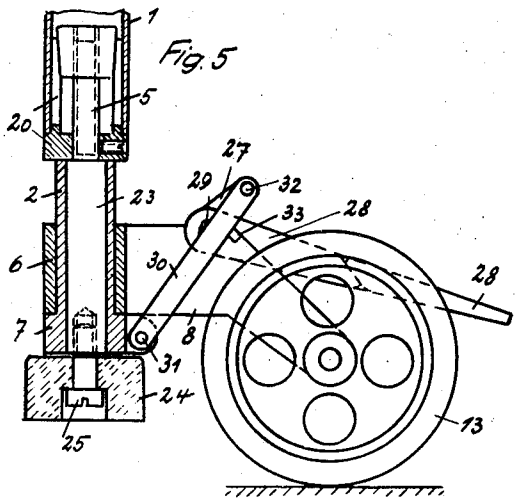
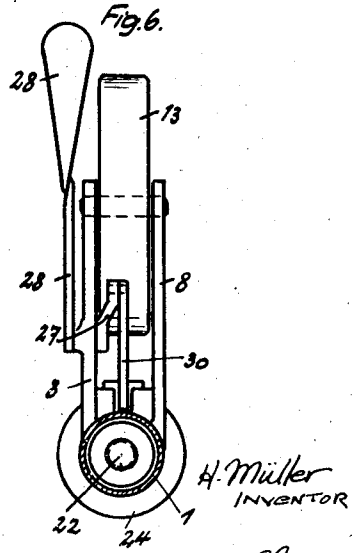


Fig. 6.



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UNITED STATES PATENT OFFICE

1,931,446

CASTER

Hans Müller, Langenfeld, Germany

Application August 22, 1932, Serial No. 629,983, and in Germany March 23, 1932

3 Claims. (Cl. 16—34)

In order to make bedsteads movable the feet are provided with casters. It is important, especially in beds for sick persons, that they should stand still and not be able to move about on the casters. With this object in view, according to the invention, each caster is connected with the foot in such a manner that it can be put in or out of action by a simple lever movement. This can be arranged in various ways, two of which are illustrated by way of example in the accompanying drawings.

Fig. 1 is a side elevation of one construction in the operating position,

Fig. 2 is the same in the position of rest,

Fig. 3 is a plan view,

Fig. 4 shows a second construction in the position of rest,

Fig. 5 is the same in the operating position, and

Fig. 6 is a plan.

In the first construction, as shown in Fig. 3, the operating lever is a bell crank lever rotatably mounted on the axle of the wheel which can take up two different positions under the action of a locking spring. In one position the foot of the bed is lifted against the roller so that the bed can be moved, and in the other position the foot is dropped so that the bed will stand still.

The foot 1 of the bed is enclosed by a tubular sleeve 2, the upper part of which in a known manner has a number of slots and which can be secured by means of a contracting clip 3 and a clamping screw 4. For fixing the sleeve 2 on the tubular member 1 the foot 5 is removed and subsequently replaced. Round the sleeve 2, below the clip 3 which also serves as a stop, is placed a rotatable clip 6 which at the bottom can bear against the projecting edge 7 on the sleeve 2 when the wheel is out of action (Fig. 2) while having space in which to move up and down. The clip 6 has at one side a tangential arm 8 which at its end is secured by means of a pivot 9 to the shorter limb 10 of the bell crank lever, the longer limb 11 of which is formed as a foot lever and serves for operating the device. The lever is mounted at its fulcrum on the axle 12 of the wheel 13. The shorter arm 10 of the lever has at its end two flat surfaces 14 and 15 against which a powerful leaf spring 16 presses, which is secured to the upper flat surface of the arm 8 by means of a screw 17. The end of the arm 8 is forked and the end of the arm 10 of the lever engages in this fork. At the inside of the fork recess two bearing surfaces 18 and 19 arranged at an obtuse angle are provided, against which the rear flat edge of the arm 10 of the lever bears in the two end positions so that its movement is limited. The spring 16 secures it in these positions.

If the device is put in action from the rest position by depressing the foot lever 11, the lever raises the foot 1 of the bed from the floor by means of the arm 8 and the clip 6. When the lever is moved, the supporting point 9 moves from the position of rest shown in Fig. 2 over the vertical central axis of the wheel into the operating position shown in Fig. 1. In this position the lever is secured by the spring 16 so that it cannot slip back.

In the second construction shown in Figs. 4–6, no spring is provided and the operating position of the wheel is secured by other means.

The wheel 13 is again secured to the foot 1 of the bed by an arm 8 and a clip 6. The arm 8 is preferably forked so that the wheel lies between the forks. The clip 6 again embraces the leg of the bed between two collars which in this case are preferably arranged below the actual leg 1 of the bed on an extension thereof. For this purpose a split sleeve 20 is inserted in the lower end of the leg 1 which sleeve is secured to the inner wall of the tube by inserting a conical wedge 21 by means of a screw 22. The screw 22 is continued at the bottom as the bolt 23, the lower end of which is enclosed by the actually enlarged foot 24 of the bed. The latter is attached to the bolt 23 by means of a screw 25. When the screw 22 is tightened by turning the bolt 23, the cone 21 is drawn into the split sleeve 20 and thereby this and the bolt 23 are secured to the leg of the bed. The parts are prevented from being unintentionally released by the lateral fixing screws 26 which prevent the rotation of the screw 22 with respect to the bush 20.

The sleeve 2 with a projecting collar 7 at the bottom lies loosely round the shaft 23 of the bolt while a corresponding upper collar is formed by the projecting lower part of the sleeve 20.

The sleeve 2 is loosely enclosed by the clip 6. The clip 6 with the arm 8 cannot be moved up and down. In contradistinction thereto, in this construction the sleeve 2 together with the leg of the bed is raised or lowered with respect to the clip 6. It is lifted by means of the bell crank lever 27, 28 which is secured to the arm 8 by the pivot 29. The short arm 27 of the lever is pivoted to a connecting rod 30 which is secured to a pivot 31 on the lower end of the sleeve 2 or the collar 7. The longer arm 28 of the lever serves for operating the device by being pressed by hand or by the foot. If the lever 28 is pressed from its rest posi-

tion (Fig. 4) into the operating position (Figs. 5 and 6), the connecting rod 30 leaves the sleeve 2 and with it the whole of the leg of the bed with respect to the clip 6 so that the foot 24 is raised from the floor. In this position the bed can be moved on its four casters.

In order to secure the device in the operating position a connecting rod 30 with its upper point of attachment 32 to the lever 27 is moved through the position of equilibrium to such an extent that it is not possible for the lever to slip back of itself even with considerable vibration due to unevenness in the floor. The end position of the lever and the connecting rod 30 is fixed by a stop 33 on the arm 6 against which the rod 30 bears (Fig. 5).

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In combination a leg member, a bearing arm slidably and pivotally mounted on the lower extremity of said leg member, a caster journaled in said bearing arm, a hand lever pivotally mounted on said bearing arm, a lever arm actuated by the hand lever, a connecting rod pivotally connected at one end to the lower extremity of the leg member and at the other end to the extremity of the lever arm, whereby during swinging movement of the hand lever and the lever arm, the bearing arm is moved vertically with respect to the leg member, the axis of the hand lever being so arranged with respect to the pivot points of the connecting rod that the latter is moved into and beyond its dead center position as the hand lever is moved in one direction to displace the bearing arm downwardly with respect to the leg member and thereby operatively position said caster, and a stop carried by the bearing arm and engaged by the lever arm when the latter moves beyond dead center position.

2. In combination, a leg member, a bearing arm mounted to move vertically on the leg member, the portion of the leg member engaged by said bearing arm being reduced in diameter and defining shoulders, a caster journaled in said bearing arm, a bell crank lever pivoted to said bearing arm and a rod pivotally connected with one of the arms of the bell crank and with the lower extremity of the leg member whereby when the bell crank is turned in one direction the bearing arm and caster are moved downwardly with respect to said leg member.

3. An arrangement as claimed in claim 2, characterized by the provision of a stop member engageable by said bell crank when the latter and the rod move beyond dead center.

HANS MÜLLER.