

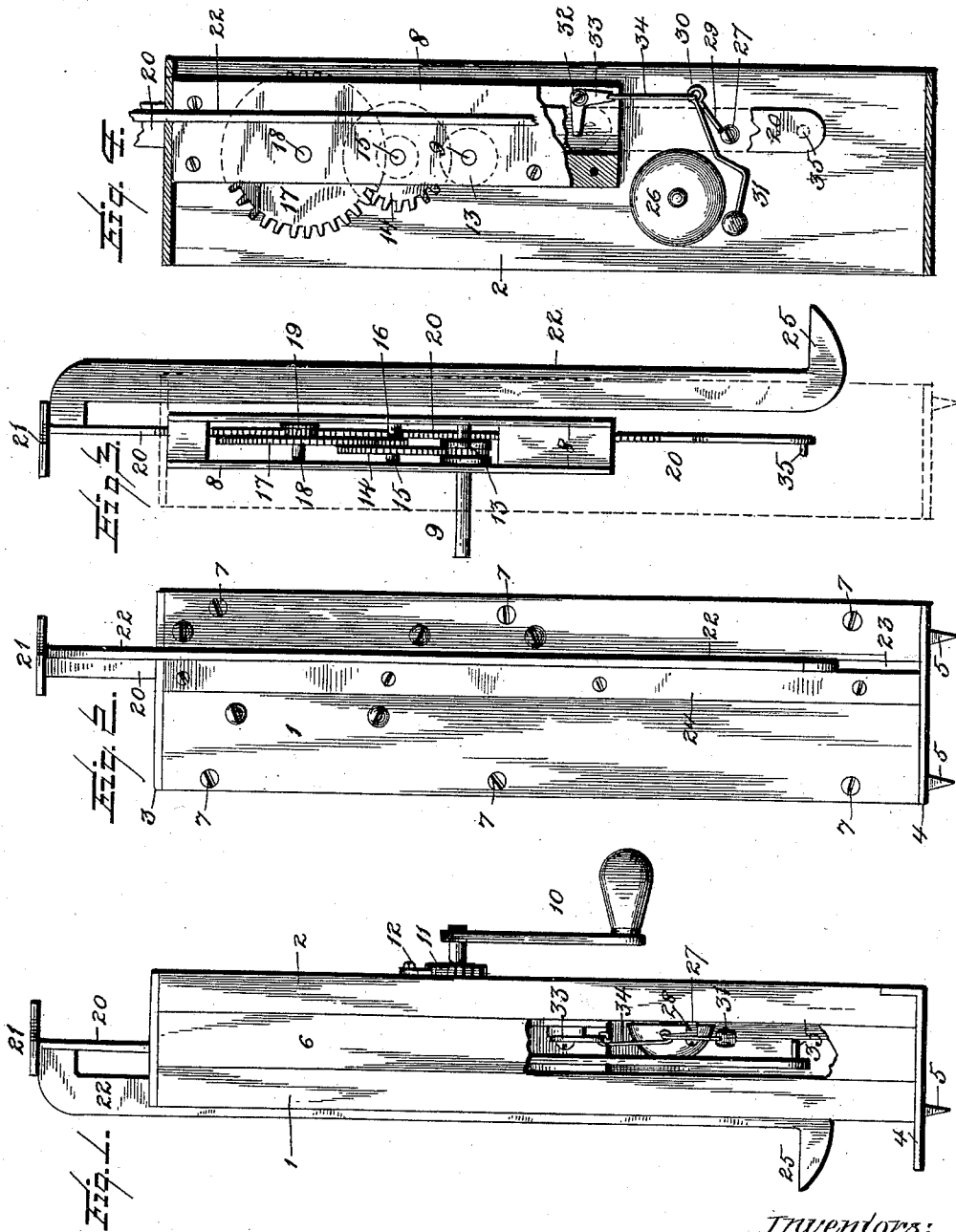
(No Model.)

B. A. SAHLMANN & J. SCHENOUSKY.

LIFTING JACK.

No. 395,517.

Patented Jan. 1, 1889.



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UNITED STATES PATENT OFFICE.

BENGT AUGUST SAHLMANN AND JOSOF SCHENOUSKY, OF MARINETTE,
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LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 395,517, dated January 1, 1889.

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To all whom it may concern:

Be it known that we, BENGT A. SAHLMANN and JOSOF SCHENOUSKY, citizens of the United States, residing at Marinette, in the county of Marinette and State of Wisconsin, have invented certain new and useful Improvements in Lifting-Jacks; 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 get out of order, and which can be provided at a minimum cost.

This invention has relation to lifting-jacks adapted to be operated by hand; and among the objects in view are to provide a jack of this class that is capable of raising heavy weights with the least possible power, which shall be strong and durable and not liable to get out of order, and which can be provided at a minimum cost.

A further object of the invention is to provide an alarm which will indicate when the jack has been raised to its highest position, whereby accidents and consequent damage are avoided.

Other objects and advantages of the invention will hereinafter appear, and the novel features of the invention will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a jack constructed in accordance with our invention, portions being broken away, showing the interior alarm mechanism. Fig. 2 is a front elevation showing the lifting-arm. Fig. 3 is a skeleton view, in side elevation, showing the operating mechanism; and Fig. 4 is a central transverse vertical section showing the train of gears and alarm mechanism.

Like numerals of reference indicate like parts in all the figures of the drawings.

The frame of the jack consists of the front and rear walls, 1 and 2, which are secured at their upper end by a metal plate or cap, 3, and at their lower end by a foot-plate, 4, which is provided with one or more spikes, 5, for preventing the jack from slipping. Interposed between the front and rear walls, 1 and 2, are removable side walls, 6, which are secured to the front and rear walls by means of bolts or screws or other securing devices 7.

Within the jack as thus constructed is supported and secured rigidly in position a metal gear-frame, 8, in which is journaled, at about the center of the jack and near the lower end of the frame, a power-shaft, 9, which projects out through the rear wall, 2, of the jack and is provided with an operating-crank, 10, a ratchet-wheel, 11, and a gravity-pawl, 12, adapted to be thrown into and out of connection with the wheel. The shaft 9 at that point thereof within the gear-frame 8 is provided with a small pinion, 13, which meshes with a gear-wheel, 14, mounted on a superimposed shaft, 15, carrying a small pinion, 16, which in turn meshes with a still larger gear, 17, mounted on a third shaft, 18, which also carries a small pinion, 19, which operates in and actuates a vertical reciprocating rack-bar, 20, adapted to move within the frame 8 and carrying at its upper end a rest, 21, designed to be inserted under an object and to raise the same when the gears are put in motion.

Projecting from the upper end of the rack-bar 20 there is a depending lifting-arm, 22, which rides in a vertical slot, 23, formed in the front wall, 1, of the jack, and moves against a guide-plate, 24, secured along the edge of the slot 23 and terminates in an angular supporting end, 25, projecting at a right angle from the jack and designed for insertion under objects which on account of their height could not receive the rest 21.

Having either inserted the rest 21 or the supporting end 25 under an object, it is evident that by revolving the shaft 9 through the medium of the crank 10 the gears will be set in motion, and that by their relative size and arrangement the least amount of power possible will result in the greatest possible power at the gear 19, which imparts motion to the rack-bar 20 and raises or lowers the same in the direction in which the gears are turned. It is also evident that in raising a heavy object the pawl 12 will ride over the teeth of the ratchet 11 and serve to hold the same against an undesired return movement when the hand of the operator is removed from the crank 10.

For the purpose of preventing the rack-bar 20 from being raised an unsafe distance, so

that it will slip from out its vertical guide, and thus permit the object being raised to fall, we have provided an alarm mechanism, whereby when said rack-bar reaches a certain point of elevation the operator will be positively notified of this fact. This is accomplished as follows:

At one side of the rack-bar 20, and secured to the inner surface of one of the walls, 1 or 2, of the jack, is a bell, 26, and to the same wall, by means of a projecting lug, 27, there is secured a coiled spring, 28, one end of which is made fast to the wall and the opposite end of which projects laterally from the spring, forming an arm, 29, and is bent to form an eye, 30, and is then returned under the bell 26 and provided with a hammer, 31, adapted to be operated against the bell.

Above the lug 27 upon a pivot, 32, there is mounted a bell-crank lever, 33, one end of which is connected by means of a link, 34, to the eye 30 of the hammer, and the other end of which projects in the path of a pin, 35, projecting laterally from the lower end of the rack-bar 20. From this it is obvious that as the rack-bar rises the pin 35 comes in contact with the projecting arm of the bell-crank lever 33 and trips the same, forcing it to draw upon the link 34 and arm 29 of the spring 28 and against the tendency of the spring. When the pin 35 has passed the bell-crank lever 33, the spring 28 causes the parts to resume their normal position, as shown in Fig. 4, and also serves to throw the hammer 31 in contact with and thereby sound the bell 26. By reversing the motion of the crank 10 the rack-bar and the object-supporting arms are returned to their normal position, and by reason of the construction of the bell-tripping mechanism the pin 35 is permitted to pass without sounding the alarm.

Having described our invention and its operation, what we claim is—

1. In a jack, the combination, with the frame thereof having a slotted front, of a gear-case mounted in the frame and carrying a train of gears, and a projecting power-shaft adapted

to actuate the gears, and a rack-bar mounted for reciprocation within the case and arranged in mesh with one of said gears, and carrying a lifting-arm projecting and depending from the upper end of the rack-bar and adapted to operate in the slot of the frame, substantially as specified.

2. In a lifting-jack, a series of gears and a rack-bar adapted to be actuated thereby and provided with a trip, in combination with a bell and a hammer for the same adapted to be actuated by said trip, substantially as specified.

3. In a jack, a series of gears mounted in the gear-case, a rack-bar adapted to be actuated by the gears and provided with a tripping-pin, in combination with a bell, and a spring-actuated bell-hammer connected with the bell-crank lever, arranged in the path of the trip and adapted to be actuated thereby against the tension of the spring, substantially as specified.

4. In a jack, the combination, with the front and rear walls, 1 and 2, the former slotted, as at 23, and having the guide-plate 24, of the gear-case 8, having the shafts 9 15 18, carrying the gears 13, 14, 16, 17, and 19, the rack 20, meshing with the gear 19 and having the head 21, and depending lifting-arm 22, terminating in an angular end, 25, and adapted for reciprocation in the slot 23, substantially as specified.

5. The rack-bar 20, having the pin 35 and the gears for operating said rack-bar, in combination with the bell 26, the spring 28, terminating in the eye 30, bent as at 29 and having the hammer 31, and the bell-crank lever 33, pivoted, as at 32, and connected to the eye by the link 34 and projected in the path of the pin 35, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

BENGT AUGUST SAHLMANN.
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