

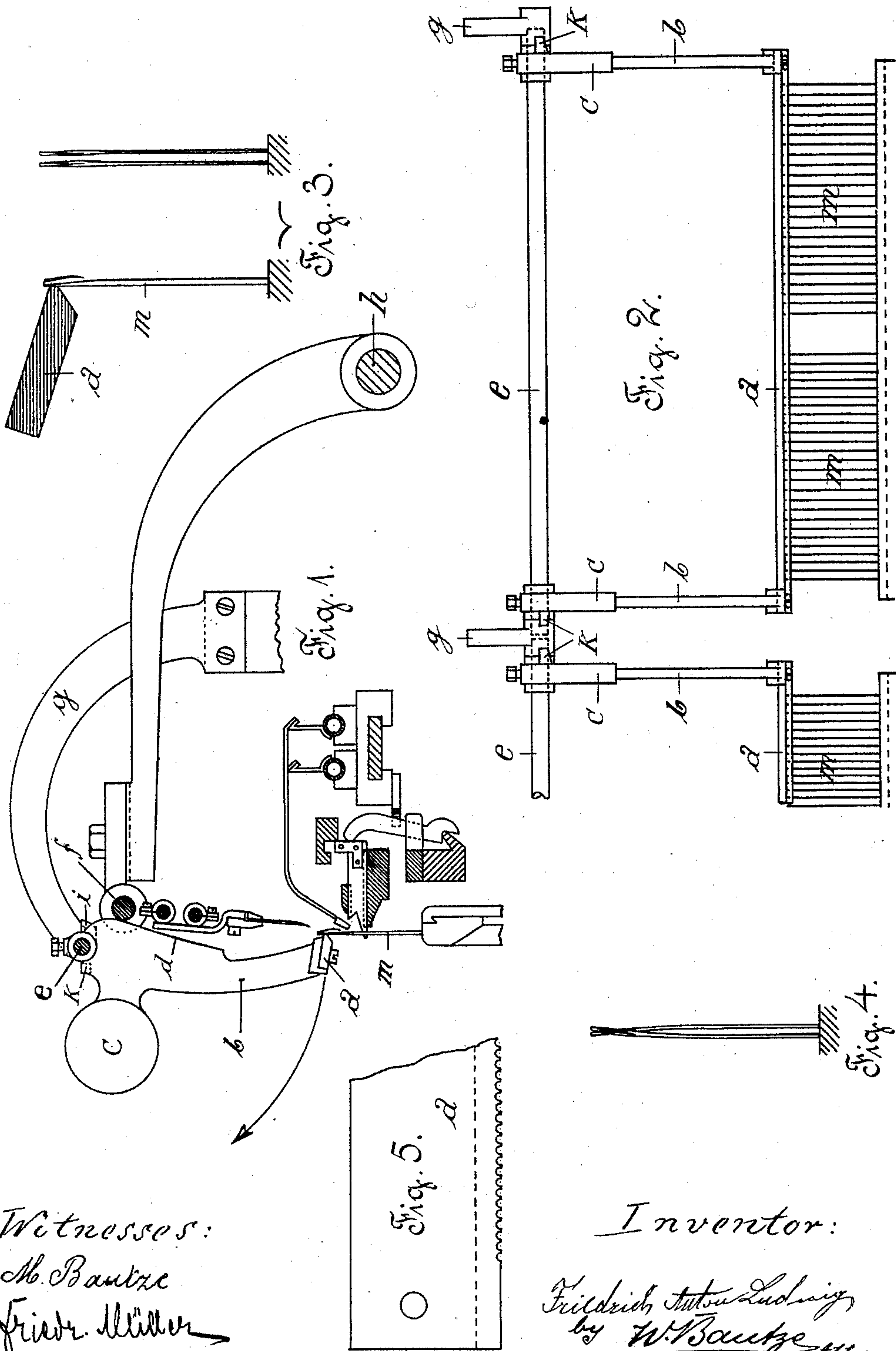
(No Model.)

F. A. LUDWIG.

NEEDLE RAIL FOR COTTON'S KNITTING FRAME.

No. 476,959.

Patented June 14, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

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NEEDLE-RAIL FOR COTTON'S KNITTING-FRAMES.

SPECIFICATION forming part of Letters Patent No. 476,959, dated June 14, 1892.

Application filed November 4, 1891. Serial No. 410,877. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH ANTON LUDWIG, a subject of the German Emperor, and a resident of Chemnitz, Germany, have invented
5 a certain new and Improved Needle-Rail for Cotton's Knitting-Frames, of which the following is a full, clear, and exact description.

The object of my present invention is to provide a needle-rail for Cotton's knitting-frames, by means of which the bending of the
10 needles and damaging of the goods being manufactured, which so often occurs in making the course, may be entirely obviated.

It is well known that the needles in Cotton's
15 knitting-frames are considerably longer than those of any other frames, and, besides this, are generally flat, so that the slightest influences—such as knots or impurities in the yarn—are sufficient to bend the needles sidewise, in the
20 direction of the section, thus breaking off the points of the same or bending them, tearing holes in the ware, or damaging the sinkers, &c. By means of the rail hereinafter more particularly described this disadvantage is en-
25 tirely obviated in that the said rail, which may be provided with small notches or depressions for the needles, is arranged to rest against the row of needles, supporting each
30 needle just at that point where it would otherwise be most likely to bend or break under the influences before mentioned.

The main advantage of my improved needle-rail is that the same in either of the above-mentioned emergencies does not require to be
35 taken out or removed from the frame, but is simply turned upward without causing any further inconvenience. My improved needle-rail, furthermore, enables the employment of much inferior kinds of yarn than heretofore.
40 The quality of the goods manufactured is also improved by the employment of my device, as the needles cannot give or bend in making the course and a backward movement of the sinkers is prevented.

45 In order to make this specification more easily intelligible, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the several views.

50 Figure 1 shows an end elevation of my improved device. Fig. 2 is a front elevation of the same. Fig. 3 shows the needles in front

and side elevation. Fig. 4 shows needles which have been bent in making the course, and Fig. 5 is a detail partial plan of a recessed needle-rail.

Only so much of a Cotton loom is shown in
55 the drawings as is necessary in order properly to illustrate and explain my invention. The spindles *e* are arranged in brackets *g* near the narrowing-bar *f*, each bracket *g* being ar-
60 ranged to support two spindles, as may be seen in Fig. 2. The needle-rail, which is beveled off at the side coming in contact with the needles, is carried by the arms *b*, mounted on
65 the spindles *e* and having collars for holding the same in position, being secured by means of set-screws. The arms *b* are provided with weights *c*, cast onto the same and which
70 have the tendency to hold the needle-rail *a* with a certain amount of pressure against the needles *m*. Pressure-springs may be substituted for the weights *c* if found desirable. In narrowing it is necessary to remove the
75 needle-rail from the needles. This is accomplished in the following manner: When the narrowing-bar, which is pivoted at *h*, is lowered, the shaft *f* of the same slides along the
80 curve *d* of the arm *b*, pushing back the rail *a* from the needles *m*. On raising the narrowing-bar again the rail *a* falls back onto the needles under the influence of the weights *c* or their equivalents. The rail *a* may also be
85 provided with recesses for the reception of the needles, as shown in Fig. 5. If it is desired to remove the rail *a* entirely from the needles, the same may be turned upward un-
90 til the rest *k* on the upper part of arm *b* comes to lie on the nose *i* of brackets *g*.

Having now particularly described and as-
certainated the nature of my invention and the
manner of using the same, I declare that what
I claim is—

1. In a Cotton knitting-frame, in combina-
tion, a swinging needle-rail suspended by
arms *b* from spindles *e*, mounted in brackets
95 *g*, and provided with weights *c*, substantially as described.

2. The combination, with the brackets *g*, hav-
ing mounted therein spindles *e*, carrying arms
b, having curved interior sides *d* and weights
100 *c* and carrying needle-rail *a*, of the shaft *f* of the narrowing-bar, substantially as described.

3. The combination, with the arms *b*, mounted on spindles *e* and carrying rail *a* and provided with weights *c*, arranged as described, of the brackets *g* and the arms *b*, having the
5 rests *k*, adapted to lie upon projection *i* of the brackets *g* when the rail is thrown back, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

FRIEDRICH ANTON LUDWIG.

Witnesses:

W. P. BOYD,
R. E. JAHN.