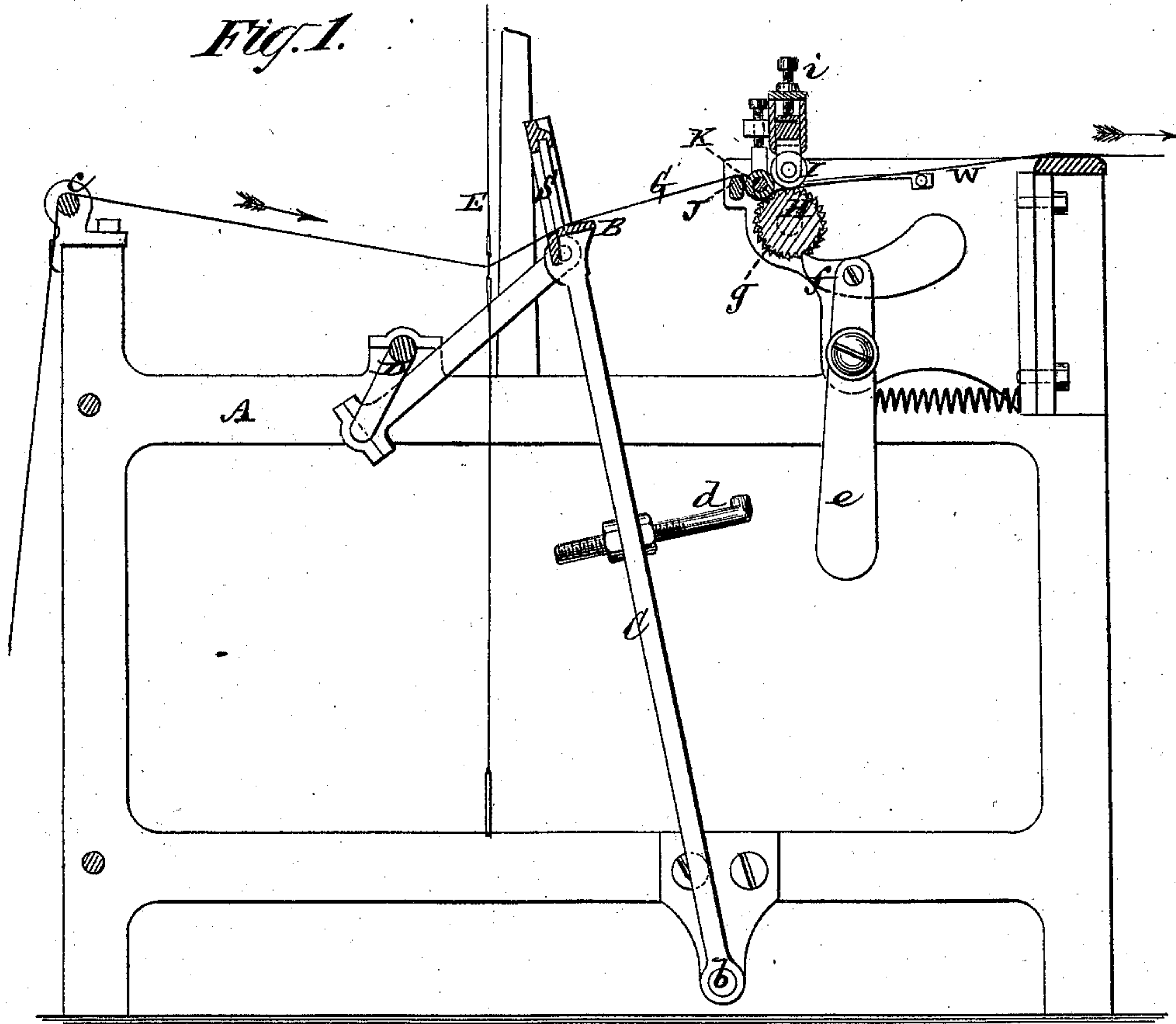


C. GAHREN & G. ZORN.  
 LOOMS FOR WEAVING CORSETS.

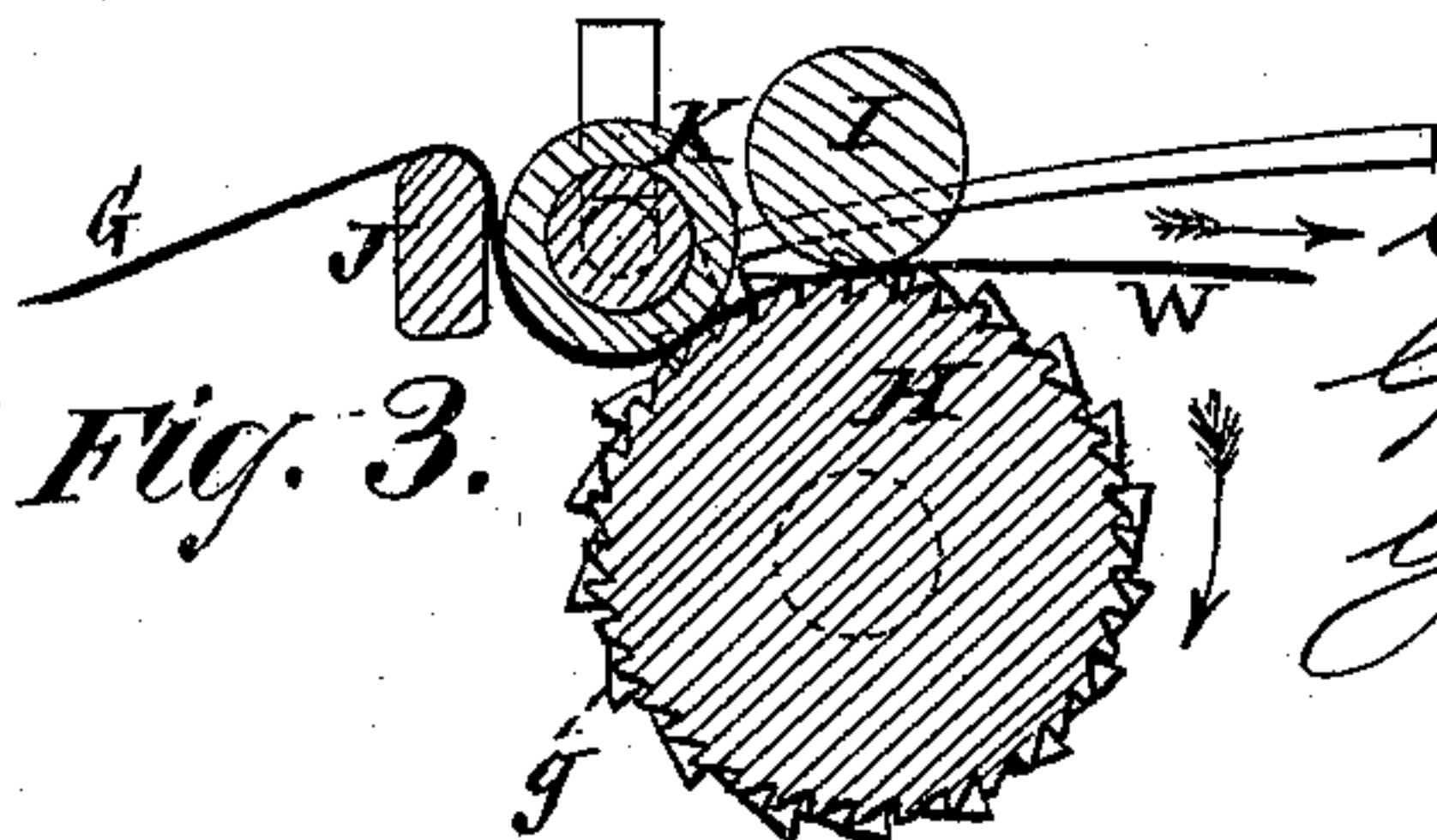
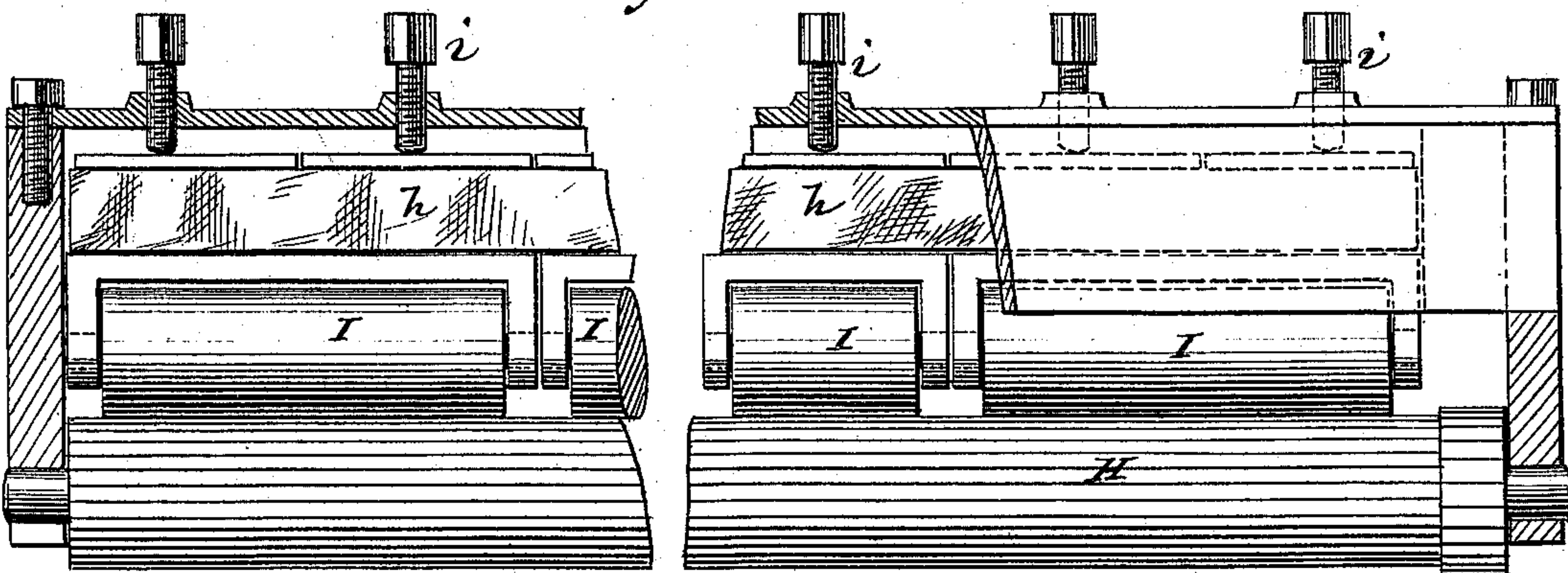
No. 176,949.

Patented May 2, 1876.

*Fig. 1.*



*Fig. 2.*



*Witnesses*

*John Becker*  
*Fred. D. Haynes*

*Fig. 3.*

*Charles Gahren*  
*Gustave Zorn*  
*by their Attorneys*  
*Brown & Allen*



# UNITED STATES PATENT OFFICE.

CHARLES GAHREN AND GUSTAVE ZORN, OF NEW YORK, N. Y., ASSIGNORS  
TO MORITZ COHN, OF SAME PLACE.

## IMPROVEMENT IN LOOMS FOR WEAVING CORSETS.

Specification forming part of Letters Patent No. 176,949, dated May 2, 1876; application filed  
December 2, 1875.

*To all whom it may concern:*

Be it known that we, CHARLES GAHREN and GUSTAVE ZORN, both of the city, county, and State of New York, have jointly invented certain new and useful Improvements in Looms for Weaving Corsets and other articles or goods of irregular form; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention is more particularly designed to be applied to power-looms for weaving in a continuous or uninterrupted manner corsets and other articles or goods having greater fullness in some parts than in others, and to do which the warp is so lifted or operated that the successive picks of filling are inserted through varying portions of it, according to the form of fullness desired. This produces an unequal length of the web in different parts of its width, which involves an irregularity of action in the take-up, and to meet which various means, most of which have been more or less complicated, have been proposed, including separate take-up rolls having a positive motion, also take-up devices controlled by the jacquard mechanism.

One part of our invention relates to the take-up of a loom for weaving irregular work, as hereinbefore specified; and consists in a combination of a single positively-operated take-up roll extending the width of the web, and a series of free and independently-operating yielding pressure-rolls held by springs in contact with the web, and made to press the latter against the take-up roll, said independent yielding pressure-rolls being preferably arranged over the take-up roll, and serving, by their yielding action, to prevent any take-up action excepting at those parts of the warp where the filling is being inserted, and where slackness is consequently produced between the take-up and the last shot of the filling by the blow of the reed.

Another part of our invention relates to the means used between the reed and the take-up for preventing any portion of the web from moving back after each cessation of the take-up roll. This part of the invention consists

in a retaining device which is composed of a stationary smooth bar and a roll between the take-up and the reed, such roll being interposed between said bar and the take-up, and the stationary bar being arranged between said roll and the reed; also, such roll being of such a size and so disposed that the cloth, in passing from the smooth bar under or around said roll, is made to take a short curve between the bar and the take-up. A retaining device thus constructed in no way interferes with the positive action of the take-up, yet effectually prevents all back action, and has the advantage of much greater simplicity than those devices for the same purpose in which open and closing clamps are used, and it is free from all injury of the cloth, which certain other retaining devices using needles are not.

Figure 1 represents a vertical section, in direction of the warp, of a loom in part having our invention applied; Fig. 2, a vertical section, upon a larger scale, in a plane at right angles to Fig. 1, in illustration of the take-up and retaining devices; and Fig. 3 is a transverse section, also upon a different scale, of said devices.

A is the frame of the loom; B, the lay, and C the lay-swords, pivoted at *b* below. S is the reed, and D a crank-shaft for vibrating the lay. E is the harness, operated by the jacquard or other suitable means; and G, the warp, which may be supplied over a beam or roller, *c*, at the back of the loom, subject to the action of weights, to preserve a uniform tension and allow the warp to be drawn forward in sufficient quantity when the taking up of the web, as hereinbefore referred to, takes place. H is a single take-up roll, which may be fluted, and which extends across the loom the full width of the web. This take-up roll is positively driven or operated in a uniform intermittent manner by the loom—as, for instance, by an adjustable driver, *d*, on one end of the swords of the lay, said driver striking at each beat of the lay a lever, *e*, which carries a pawl, *f*, that works in a ratchet, *g*, on the end of the take-up roll, to operate it as required. Said take-up roll H, however, has no action of itself upon the web W, but, as regards taking up the latter, is dependent upon the joint ac-



tion with it of a series of free and independently-operating yielding pressure-rolls, I I, arranged in line with one another over the take-up roll H. These independently-operating rolls I I may be of various lengths, and of any desired number, according to the work to be done. They are held in contact with the web by rubber or other springs *h*, which are adjustable by set-screws *i*, and do not operate in concert with the take-up roll H on the web, but prevent any take-up action excepting at those parts of the warp where the filling is being inserted, and where slackness is consequently produced by the blow of the reed between the take-up and the last shot of the filling. Thus the take-up of the web W is dependent upon the opening of the shed at different points in its width, as controlled by the jacquard-machine, although the take-up is not worked by the jacquard, but is controlled by the insertion of the filling, as above described, and only such of the independently-operating rolls I I act in concert with the take-up roll H to effect the take-up as face the last shot of the filling, and where the slackness produced between the take-up and such shot of the filling by the beating up of the lay admit of such one or more of the yielding rolls I acting in concert with the take-up roll to take up the web at that part of the warp, the other of said pressure or yielding rolls preventing any take-up at other parts of the warp.

To prevent back slip or action of the web after each action of the take-up, the web is made to pass over a stationary smooth bar, J, and under a rubber-faced or other roll, K, and from thence to the take-up roll H, said bar J and roll K being interposed between the take-up and the reed throughout the width of the web, and said roll being between the bar and the take-up. This constitutes the retaining device, and it is important in the construction of it that the roll K be of such a size and be so disposed that the web or cloth, in passing from the smooth bar to and under said roll, is made

to take a short curve between the bar and the take-up. The roll K may or may not hold the cloth in contact with the take-up roll; but if arranged to do this, care should be taken that it does not press the cloth too hard against the take-up roll to interfere with the action of the latter. The said roll K may be furnished with a ratchet-wheel having a pawl applied to it, to prevent it from making any backward motion.

Any suitable shuttle may be used.

The sharp bend given to the web by the bar J and roll K, coupled with the friction of the web on the bar, effectually prevents any back slip of the web after its take-up by the roll H.

We claim—

1. The combination, with the positively-operated single take-up roll H, extending throughout the width of the web, of a series of independent automatically-operating yielding pressure-rolls, I, held by springs in constant contact with the cloth, and, by their pressure on the latter against the take-up roll, operating to prevent any take-up of the cloth by the roll H, excepting where slackness is produced by the beating up of the lay between the take-up and the last shot of the filling, substantially as specified.

2. The retaining device, to prevent back action of the web after each take-up of the latter, consisting of a combination, with the take-up roll H, of a stationary smooth bar, J, and roll K between the take-up and the reed, the roll K being interposed between said bar and take-up, and the stationary bar between said roll and the reed, and the roll K being constructed and arranged, with relation to the bar J and take-up, as described, whereby the cloth is curved or bent between said bar and the take-up, essentially as shown and described.

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Witnesses:

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