(No Model.) 2 Sheets—Sheet 1.

L. J. KNOWLES.

BACK ROLL AND SUPPORTS THEREFOR FOR LOOMS.

No. 254,027. Patented Feb. 21, 1882.

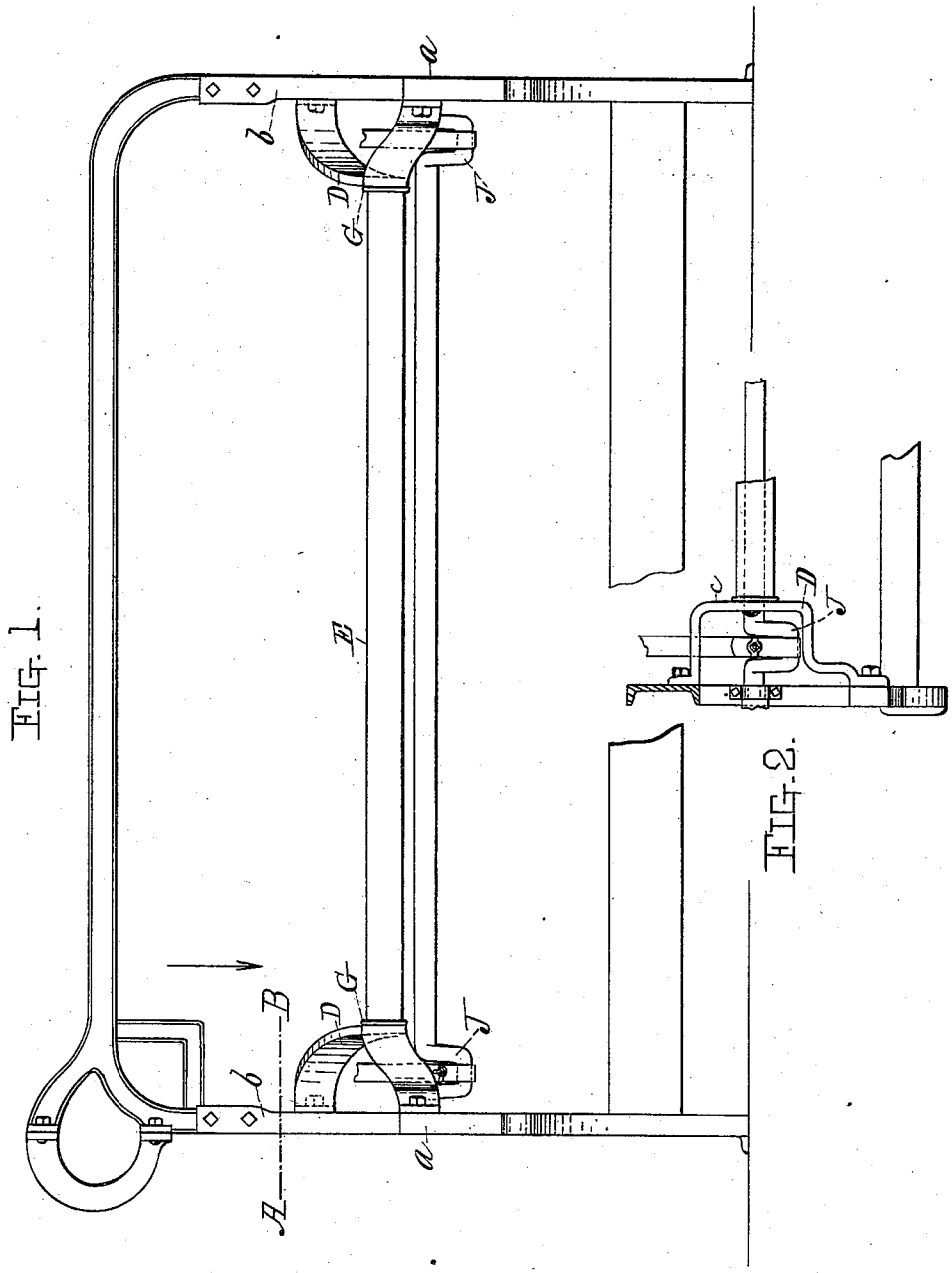


FIG. 1.

FIG. 2.

Witnesses,
H. C. Cressman
Albert A. Baker.

Inventor,
Lucius J. Knowles

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

(No Model.) 2 Sheets—Sheet 2.

L. J. KNOWLES.

BACK ROLL AND SUPPORTS THEREFOR FOR LOOMS.

No. 254,027. Patented Feb. 21, 1882.

FIG. 3.

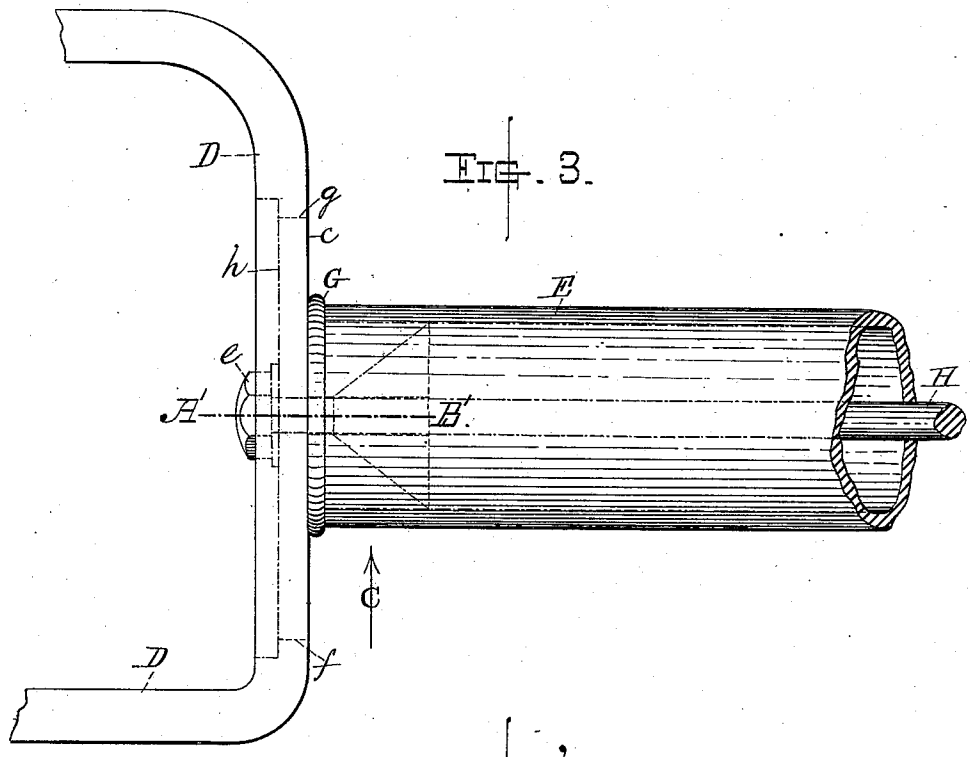
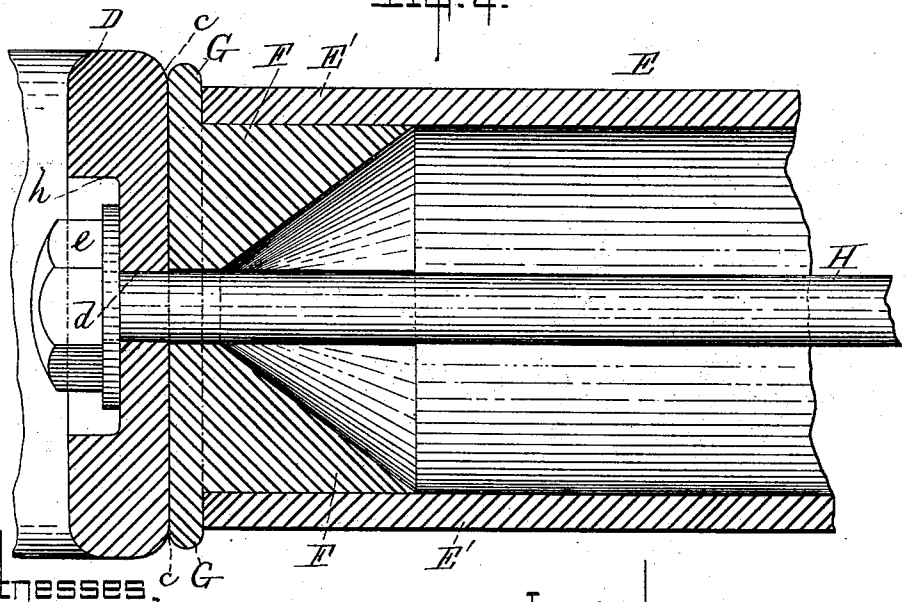


FIG. 4.



Witnesses,
H. B. Greyson
Albert A. Baker

Inventor,
Lucius J. Knowles

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

UNITED STATES PATENT OFFICE.

LUCIUS J. KNOWLES, OF WORCESTER, MASSACHUSETTS.

BACK ROLL AND SUPPORT THEREFOR FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 254,027, dated February 21, 1882.

Application filed July 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS J. KNOWLES, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Back Rolls and Supports therefor for Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents the side of a loom-frame, showing the back-roll stands and back roll hereinafter described arranged and secured upon the same. Fig. 2 represents a horizontal section through the arch-stand of the loom, taken on line A B, Fig. 1, looking in the direction of arrow in same figure, showing a plan view of one of the back-roll stands and portions of the back roll, crank-shaft, crank, and crank-arm. Fig. 3 represents upon an enlarged scale a top or plan view of a portion of one of the back-roll stands, with one end of a section of the back roll secured to the same; and Fig. 4 represents upon a still larger scale a central longitudinal section through the back roll and roll-stand shown in Fig. 3, taken on a continuation of line A B therein, looking in the direction indicated by arrow C, same figure, the tie-rod and its nut and washer being shown in side elevation.

My invention relates to back rolls and their supporting-stands employed upon looms for supporting and guiding the warp from the yarn-beam to the heddles of the harnesses in the operation of weaving.

It consists in the construction and arrangement of the several parts which compose said roll, and in the combination of said roll, its supporting-stands, and the loom-frame, as will be hereinafter more fully set forth.

To enable those skilled in the art to which my invention appertains to make and use the same, I will proceed to describe it more in detail.

In the drawings, the parts marked D represent the back-roll stands, upon which the back roll, E, is supported. Said roll stands or supports are bolted at one end to the loom-sides *a* and at their other ends to the arch-stands *b* of the loom. The back roll, E, consists of a hollow cylinder or tube, E′, which may be made of any suitable metal. Each end of said cylinder E′ is provided with a metal head, F, having a rim, G, formed upon its outer edge for bearing against the end of the cylinder when it is inserted or driven into the end thereof, as is fully represented in Fig. 4 of the drawings. Through the centers of said heads are formed longitudinal openings for the passage of a tie-rod, H, said openings being in this instance made to fit the surface of the tie-rod only for a short distance from the outer ends of the heads, and then flaring or cone-shaped, as represented in Fig. 4, thereby enabling the tie-rod to be easily passed through from one end of the roll to the other after the heads F have been fitted into the ends. It is obvious that if the openings in the head were not made flaring, as aforesaid, the operation of passing the rod through would be quite difficult. It also serves to lighten the weight of the roll. The back roll is fitted between the surfaces *c* of the roll-stands D, being in practice about seven feet in length. It is secured to said stands by passing the tie-rod through the roll and through horizontal slots *d* formed in the stands, and then fastening the parts together by means of nuts *e* upon each end of the tie-rod, which may be turned up against the outer sides of the stands D. Washers may also be used between the sides of stands D and nuts *e*, if desired. Slots *d* extend from the points *f* to the points *g* in the roll-stands, as is represented by dotted lines in Fig. 3, thus allowing of the adjustment forward or back of the roll upon said stands.

The stands D may be recessed to receive the nuts *e* of tie-rod H, as represented by full lines *h* in Fig. 4, and dotted lines in Fig. 3; or said stands may be made solid, with simply the slots *d*, before described, formed in the same.

It has recently been found desirable in weaving different kinds of cloth to arrange the back roll, E, nearer to the harnesses of the loom than has heretofore been done; and to accomplish this the adoption of the irregularly-formed supports or back-roll stands D (shown in the drawings) has been necessitated on account of their coming over and within the circle

traversed by the cranks J of the loom. Said stands are so formed (see Figs. 1 and 2) as to allow the cranks J to turn without striking them, while at the same time they form a firm and rigid support for the roll E.

It will be seen that when the stands D are bolted to the loom-frame and the roll E secured to said stands, as before described, said roll is not only held in the desired position, but a strong and substantial girt is provided for that part of the loom-frame, which tends to greatly stiffen it. This alone is of considerable importance, especially in weaving heavy goods, by preventing the shaking of the loom to a considerable extent when the latter is in operation.

Having described my improvements in back rolls and supports therefor for looms, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination of back-roll stands or supports D D with tie-rod H, provided with suitable nuts, *e*, heads F F, provided with rims G G, and made with conical-shaped openings upon their inner faces, and shell part or cylinder E′, substantially as and for the purposes set forth.

2. The combination of back roll, E, provided with heads F F, and tie-rod H, back-roll stands or supports D D, and the loom-sides *a* and arch-stands *b* of the frame of a loom, constructed and arranged substantially as shown and described, for the purpose stated.

LUCIUS J. KNOWLES.

Witnesses:
H. H. MERRIAM,
ALBERT A. BARKER.