

C. W. Gilbert.
Shedding.

Nº 103,600.

Patented May 31, 1870.

Fig: 1.

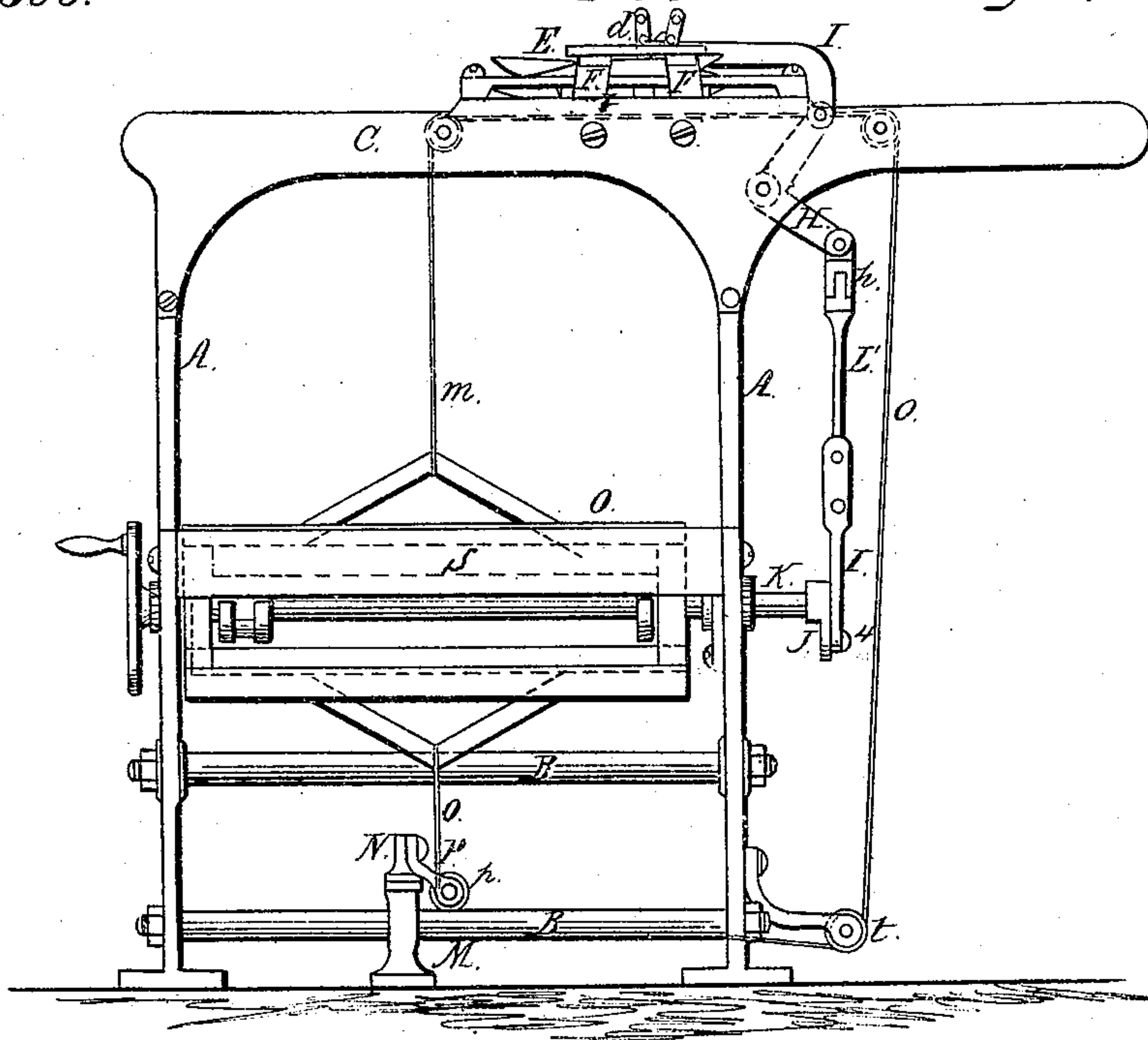
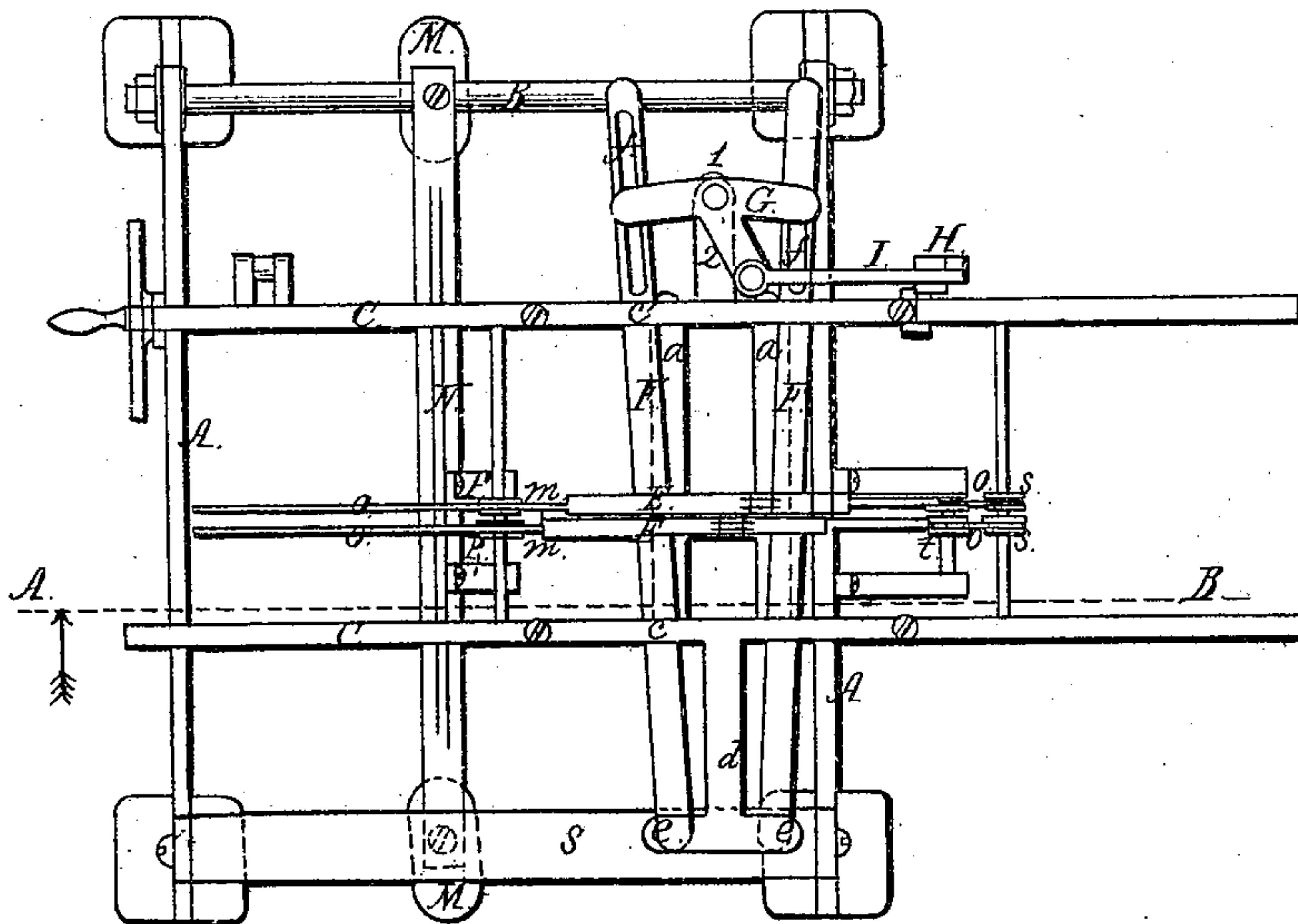


Fig: 2.



Witnesses:
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Inventor.
Chas W. Gilbert

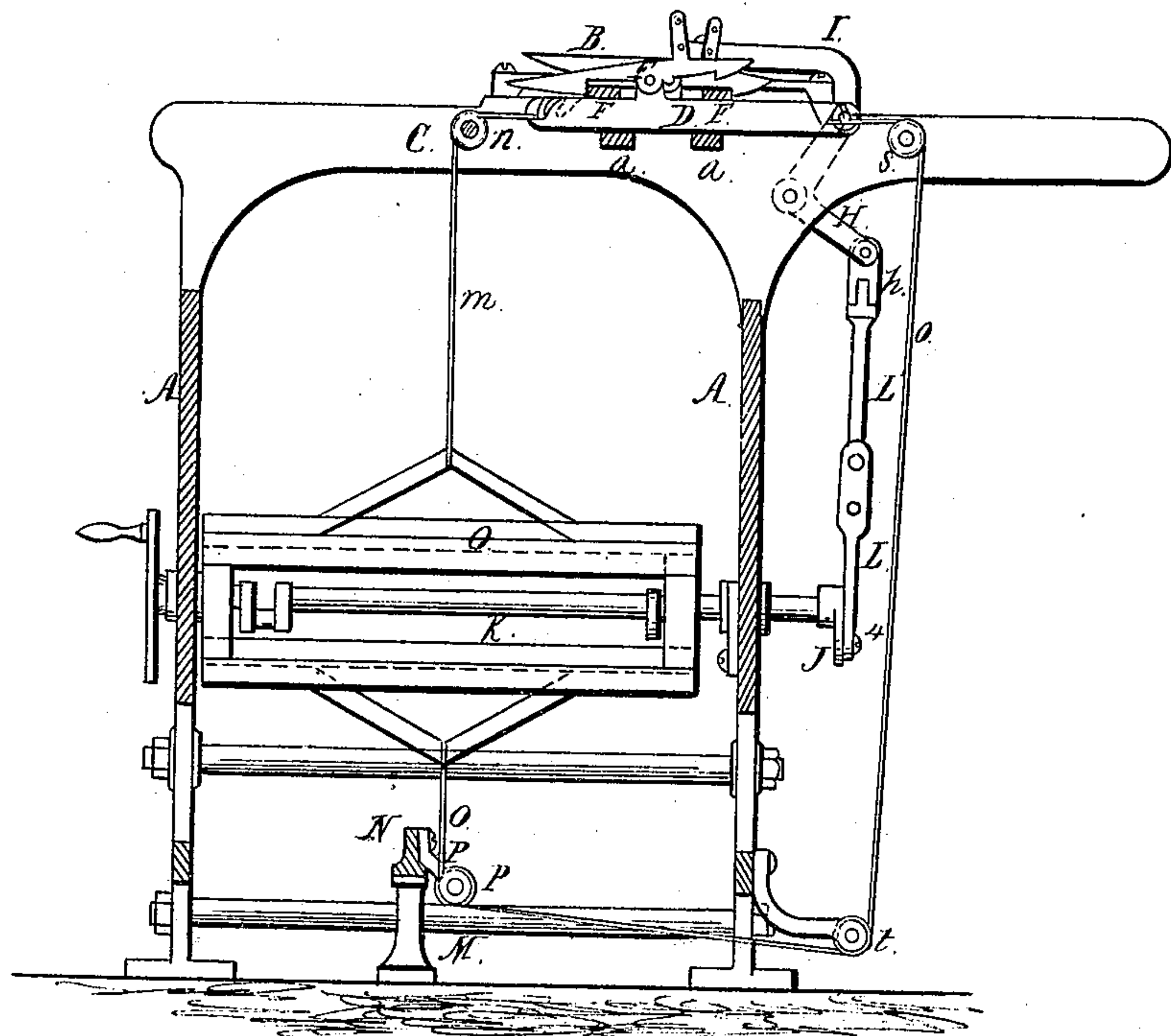
Sheet 2. of 3 Sheets.

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Fig. 5.



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Fig. 5.

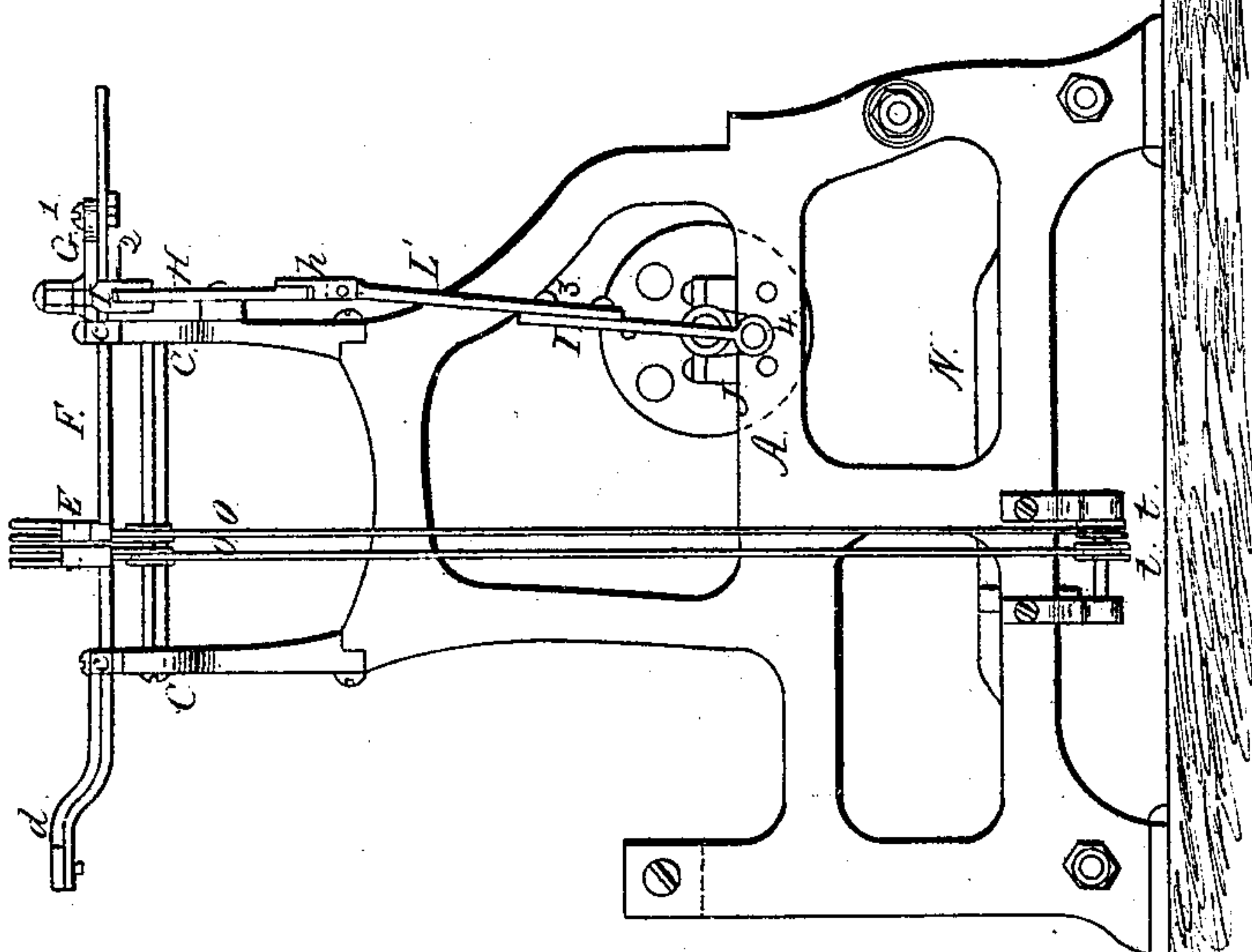
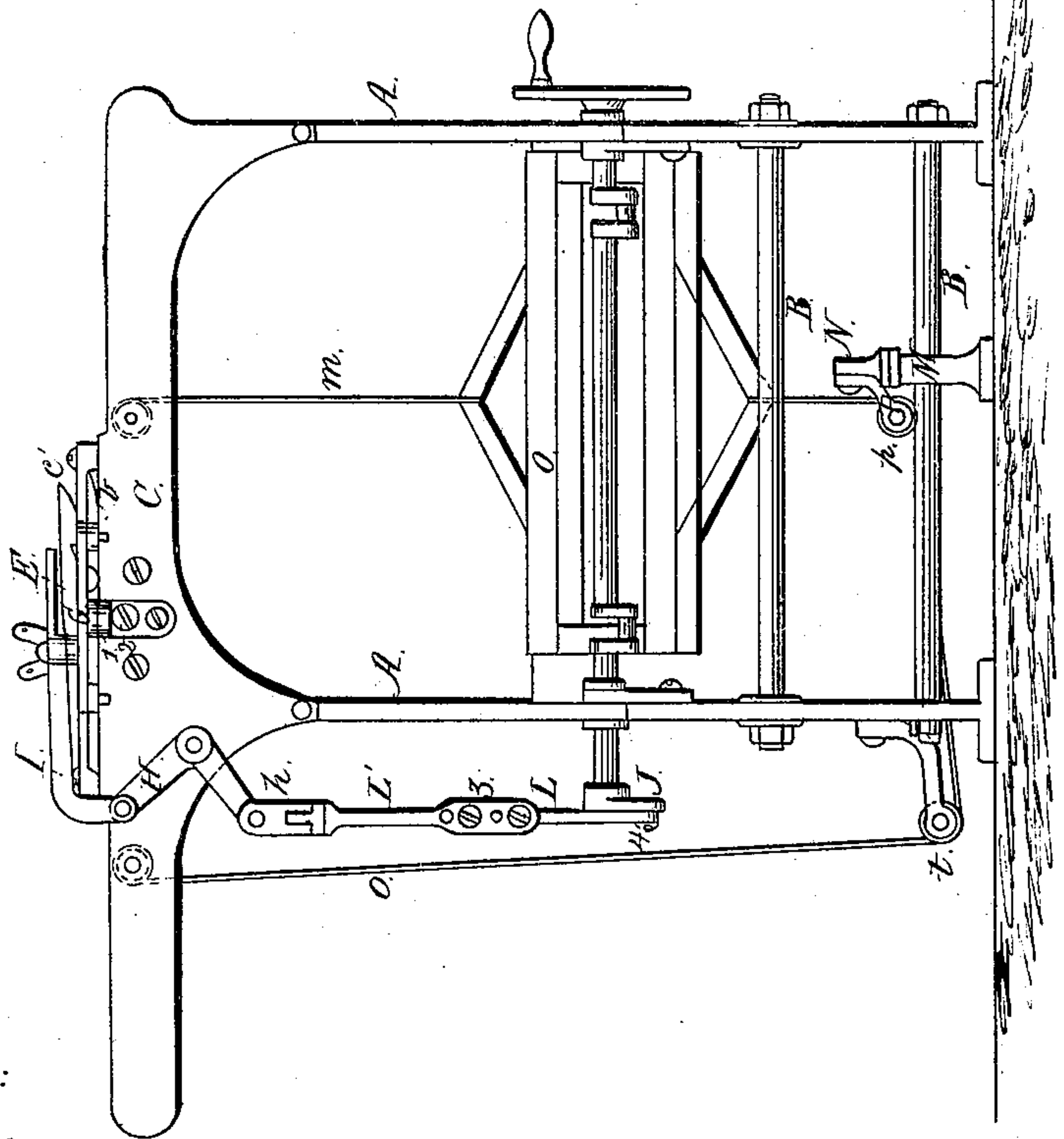


Fig. 4.



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United States Patent Office.

CHARLES W. GILBERT, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 103,600, dated May 31, 1870.

IMPROVEMENT IN LOOM.

The Schedule referred to in these Letters Patent and making part of the same.

Know all men by these presents:

That I, CHARLES W. GILBERT, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Fancy Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a front view of so much of a loom as is necessary to illustrate my present improvements;

Figure 2 represents a top or plan view of the same.

Figure 3 represents a section on line A B, fig. 2;

Figure 4 represents a rear view; and

Figure 5 represents a view of the right-hand side of the loom, shown in fig. 1.

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

My invention or improvement relates to the combination with the bottom cross-girts of central supports, as hereafter explained.

In the drawing—

A A are the side pieces of the loom-frame, which are secured together by means of the cross-girts B B.

To the top of the side pieces A A are secured the cross-pieces C C.

The slides or travelers D work upon supporting bars *a* connected with the top pieces C C, and have the double hooks E pivoted or hinged to them, in the same manner as the corresponding parts in Bleakie's loom, for which he is about to apply for Letters Patent.

The harness-bars or knives F rest upon projections *b* upon the tops of the cross-pieces C, and are held in place by removable guide-pieces *c c'*.

From the piece *c* an arm, *d*, projects forward and upward, and terminates in T-shape, as shown in fig. 2.

To the ends *e e* of arm *d* are hinged the front upwardly-curved ends of the harness-bars or knives F, as shown in figs. 2 and 5.

The opposite ends of the harness-knives or bars project back of the top cross-piece C, and are provided with slot *f* through which pins project from the three-armed lever G, which is pivoted at 1 to a stand, 2, secured to the back cross-piece C.

The central arm of lever G is connected to the bell-crank or lever H by the hinged connection I.

The bell-crank lever H is connected to crank J on the end of shaft K by means of a hinged wrist-piece, *h*, and two pieces L L', the latter being provided with a series of holes, 3, as indicated in fig. 4, (or a that

may be used for that purpose,) whereby the connection can be lengthened or shortened at pleasure.

The crank J should be provided with a slot, so that wrist-pin 4 can be moved in and out as the connection L L' is lengthened or shortened.

The joined ends of the parts L L' being enlarged and flattened, as shown in the drawing, a very strong and stiff connection is formed.

In wide looms, complaints have been made that the frames are liable to sag or spring down, thus impairing and seriously affecting the proper action of the looms.

To remedy such difficulties, I have introduced auxiliary supporting steps M, which, in this instance, are fitted to slide upon the lower girts B, the ends of the cross-piece N being fastened to the tops of such steps.

By this arrangement, it will be seen that the ends of the cross-piece N are supported directly from the steps M, which in turn are so arranged that they rest upon the floor underneath the front and back girts B.

While, therefore, the steps are brought directly, or nearly so, under the front and back cross-girts, thereby economizing room, they, at the same time, are so combined with the ends of the cross-girt as to give direct support to that, and near each end thereof.

The upper parts of the harness-frames O are connected to the inner ends of the slides or travelers D by means of flattened wires *m*, which pass over rolls or sheaves *n*, while the lower parts of the harness-frames are in like manner connected to the outer ends of the slides or travelers D by means of flattened wires *o*, which pass down under rolls or sheaves *p* supported and turning on journals in the arm-pieces P, fastened to the cross-beam or piece N, thence under rolls or sheaves *t*, supported in arms fastened to the side of the loom-frame; thence up and over sheaves or rolls *s* to the outer ends of the slides or travelers D, to which they are properly secured.

Flattened wire for connecting the harness-frames with the slides or travelers, is an improvement over cords and straps. It is strong, light, runs easily, and retains a uniformity of tension, which is a great desideratum.

I prefer to use tempered wire, the ends of such wire having the temper drawn, to facilitate the attachment thereof to the slides and harness-frames.

The flattened wire also possesses great advantages over round wire, which has been used in some cases. The latter wire has three or four, or more, times the diameter of the former, and in working over the pulley necessarily causes greater strain, as that portion of the metal which lies on the concave portion of the curve must be compressed, and that portion which

lies on the convex side must be expanded, while the successive parts of the cylindrical wire are bent over the pulley, and when many wires are used, the aggregate strain thus produced becomes very considerable.

Another defect is that this expanding and compressing action causes the crystallizing of the metal sooner or later, and thus unfits it for use.

With the flattened wire none of these defects are noticed. It bends much more easily than the other, and thus produces less strain, while, owing to its flat, thin form, there is no compressive action, and the quality of the metal is not impaired.

By arranging the harness-bars or knives across the top of the loom, and turning or curving up their front projecting ends over the breast-beam S, as shown in the drawing, I am able to obtain the desired motion to said bars to give the necessary elevation and depression to each harness, whereby all of the threads forming a single shed, will stand upon the same angle irrespective of the number of harnesses which may be depressed or raised to form such shed, and that, too, without the interposition of levers or connections between the slides or travelers D and the wires which connect the same to their respective harness-frames.

By the elevation of the front projecting ends of the harness-bars or knives, they do not incommode the operator, while at the same time they and the arm *d* afford very convenient supports for the suspension of mending or piecing threads.

When the crank-shaft K is put in motion, the three-armed lever G will be rocked back and forth, thereby alternately spreading and closing the rear ends of the harness-knives F for opening and closing the harnesses, the double hooks E being operated upon by means of indicator-levers.

Having thus described my improvements in looms, What I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The arrangement of central steps under the front and back-girts of the loom-frame, and in combination with and supporting the cross-girt near its ends.

2. The combination with the front and back girts B of the steps M, substantially as shown and described.

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Witnesses:

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