

(No Model.)

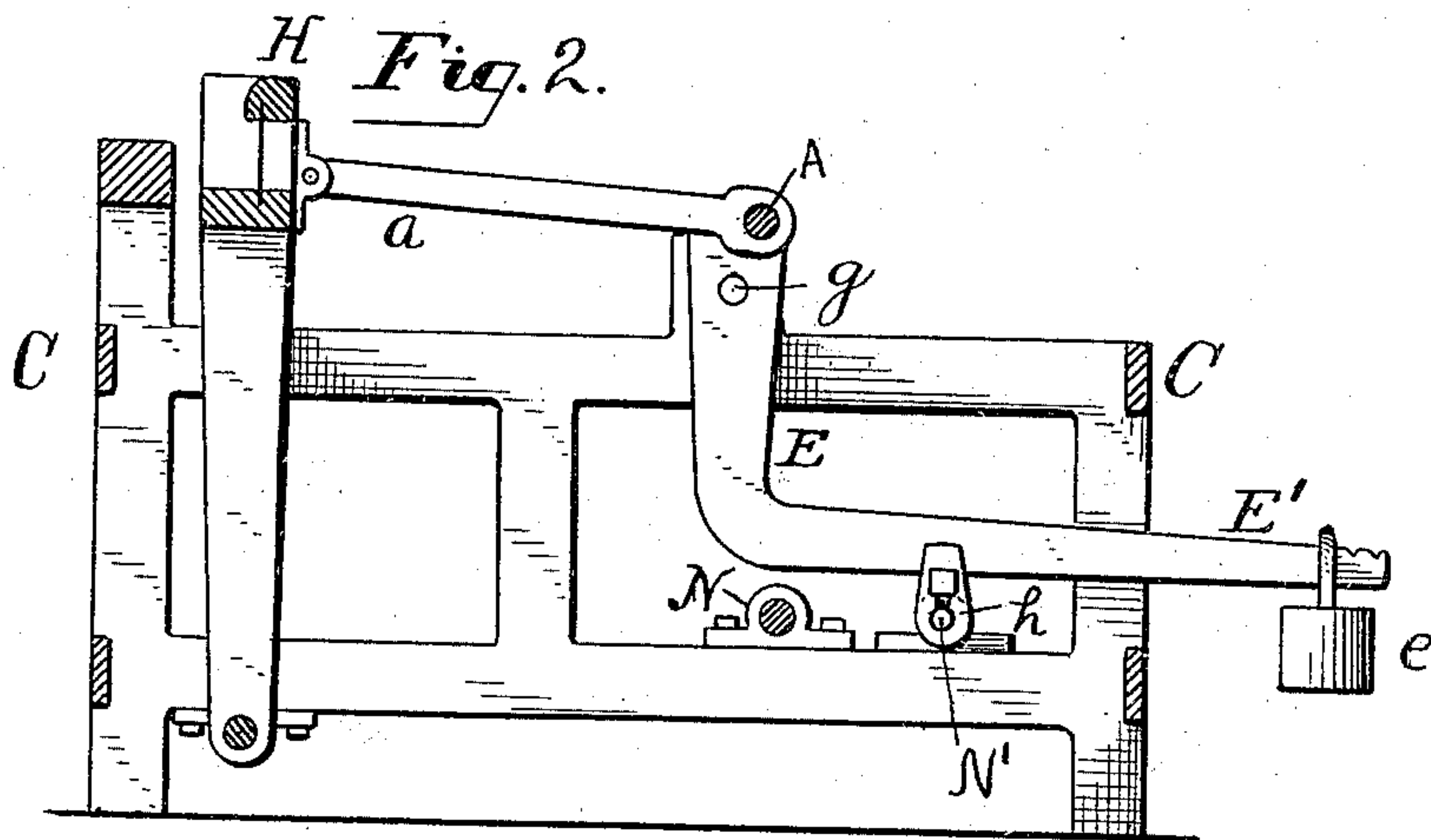
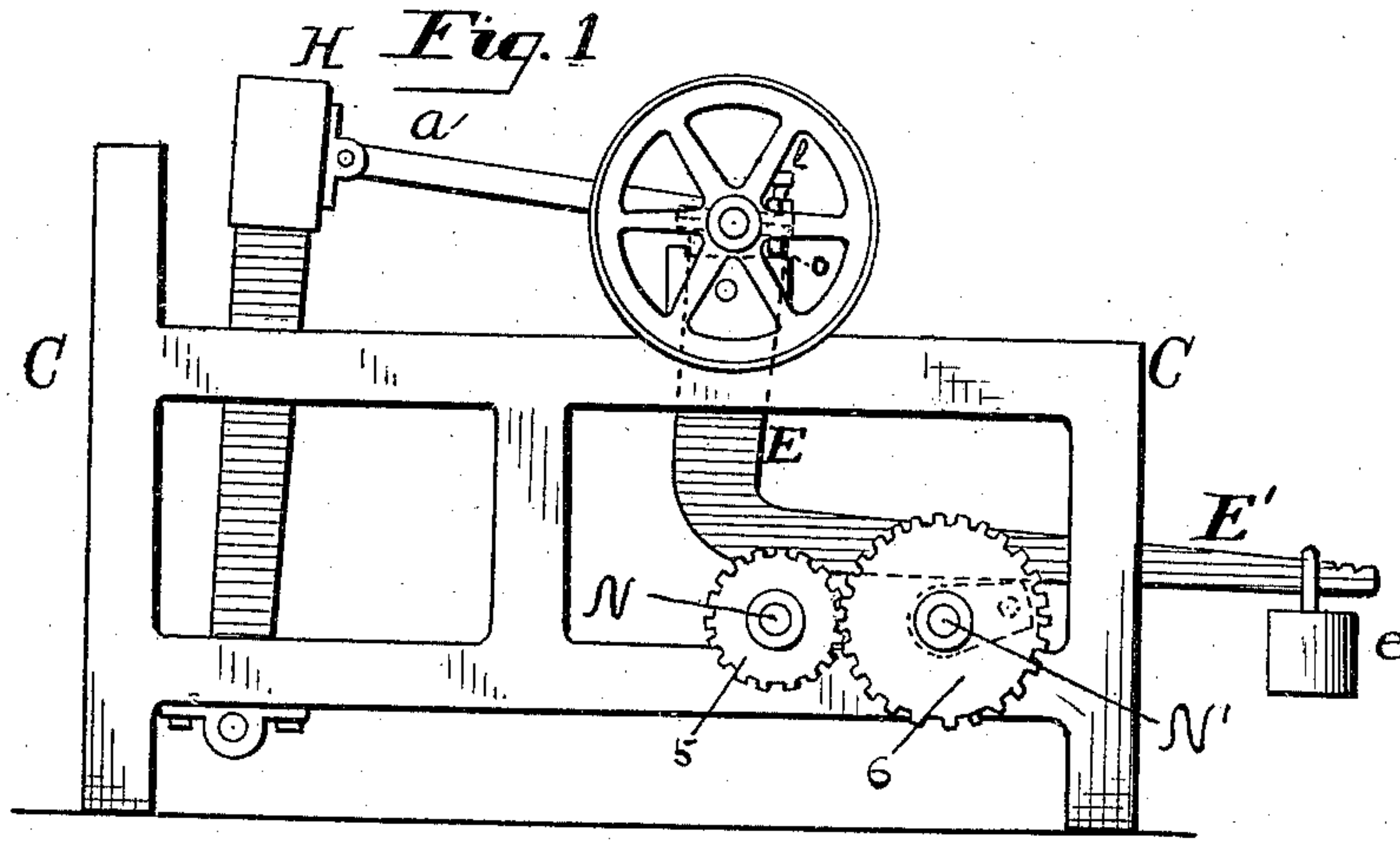
2 Sheets—Sheet 1.

N. A. WOODHEAD

LOOM FOR WEAVING LOOPED OR TERRY FABRICS.

No. 372,005.

Patented Oct. 25, 1887.



WITNESSES:

James B. McCarron

INVENTOR

North Albert Woodhead,
by his attorney,
Horace Pettit.

(No Model.)

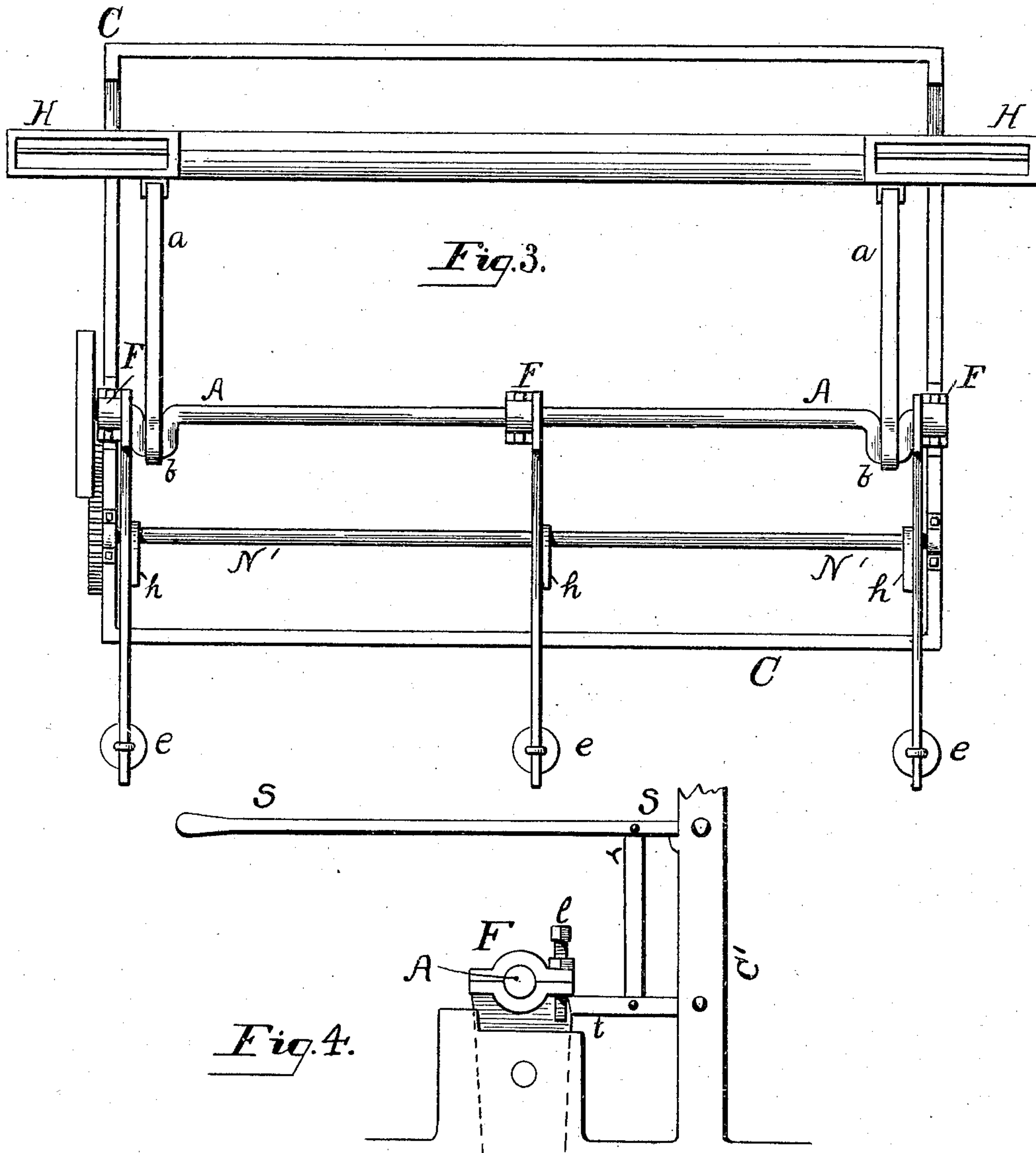
2 Sheets—Sheet 2.

N. A. WOODHEAD.

LOOM FOR WEAVING LOOPED OR TERRY FABRICS.

No. 372,005.

Patented Oct. 25, 1887.



WITNESSES:

W. P. Gie
James B. McCann

INVENTOR

North Albert Woodhead,
by his Attorney
Horace Pettit.

UNITED STATES PATENT OFFICE.

NORTH ALBERT WOODHEAD, OF PHILADELPHIA, PENNSYLVANIA.

LOOM FOR WEAVING LOOPED OR TERRY FABRICS.

SPECIFICATION forming part of Letters Patent No. 372,005, dated October 25, 1887.

Application filed July 17, 1886. Serial No. 208,241. (No model.)

To all whom it may concern:

Be it known that I, NORTH ALBERT WOODHEAD, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful
5 Improvement in Looms for Weaving Looped or Terry Fabrics; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.
10

My invention relates to looms used for weaving, and especially to such looms as are employed in the manufacture of fabrics having a terry or loop raised thereon, such as Turkish
15 toweling and other fabrics of a like nature.

The object of my invention is to produce an improved loom whereby the terry or pile loop is formed and produced on the surface of the fabric in a direct and effectual manner without involving the use of the complicated and intricate system of parts so generally adopted
20 in the construction of terry-weaving devices.

As is well-known, in the process of weaving a terry fabric the upper or terry series of
25 warps is weighted lighter than the under or body series, for the purpose of allowing the loops to be formed on the surface by the lay swinging or being driven fully up to the body already manufactured after several or one or
30 two picks of the weft-threads have been thrown or shot from the shuttle and but partially beaten up, the weft-threads having in the meantime so tightened upon the upper warps or terry warps that the latter are forced
35 with them by the full beat fully up, and thereby forming the pile loops or terry. I am aware that several mechanical devices to produce this result have been invented, but all, as heretofore stated, of such a complicated nature as
40 to render stoppage of the looms frequently necessary, by reason of the parts becoming displaced or in some way disordered. In my invention, however, the construction and arrangement of the parts necessary to produce
45 the result are simplified and the parts are adjusted to the loom in such a manner as to practically preclude liability to disarrangement and accident to the parts, at the same time producing an equal, if not superior, fabric.

50 My improvement consists in the peculiar construction, adjustment, and combination of the parts, as hereinafter fully set forth and described.

I will now describe my invention, so that

others skilled in the art to which it appertains 55 may make and use the same, reference being had to the accompanying drawings, in which similar letters refer to similar parts.

Figure I is an end or cross-sectional elevation of a loom with the movable journal-boxes 60 and crank-shaft thrown fully back as when partially beating up the weft. Fig. II is a cross-sectional elevation thereof without the gear-wheels, showing the journal-boxes and crank-shaft thrown forward with the lay forced 65 fully up. Fig. III is a plan or top view of the loom having my improvement attached. Fig. IV is a detail view showing one of the journal-boxes and part of its supporting-lever, its adjusting-screw, and the device for locking the 70 lever and box in a forward position for the production of a plain fabric.

C is the frame of the loom to which my improvement is applied.

A represents the crank-shaft, having the 75 cranks *b b* formed thereon.

F F are the movable journal-boxes, in which the crank-shaft A revolves, each of which boxes is securely attached to and has its bearing upon a pivoted arm or lever, E E', piv- 80 oted to the loom-frame at *g*.

H is the lay, regularly operated to and fro by the arms or rods *a a*, connected with the cranks *b b*, and at stated intervals by the forward and backward motion of the entire crank- 85 shaft A as operated by the arms E E'.

N is the lower or cam shaft, connected by the gears 5 and 6 with the auxiliary cam-shaft N', provided with cams *h h h*, which at each revolution of the shaft N raise the arm E'. 90 The arm or lever E' is provided at or near its extremity with a weight, *e*, for the purpose of bearing down the arm E' upon the cam *h*.

l is a thumb-screw provided on the journal-box F, which regulates the extent of the back- 95 ward movement of the shaft A.

S is a lever connected by rod *r* with the lug *t*, by lowering which the lug *t* engages the journal-box F when it is desired to weave a plain fabric. 100

In the operation of the loom, the crank-shaft A, being revolved by means of power properly communicated, drives to and fro the lay H by means of the rods *a*, communicating with the cranks *b b*, and thus drives the picks of 105 weft-threads partially up at each revolution of the crank-shaft A, when it is thrown back, as shown in Fig. I. In order, however, to pro-

duce the terry-loop, the entire shaft A is at the proper interval—usually after two picks of weft-threads have been shot from the shuttle—thrown forward to a point where, when the

5 cranks B arrive on a horizontal plane toward the lay H, the lay will be caused to make a full beat, driving full up the picks and producing the terry or pile loop in the manner heretofore described.

10 In order that the shaft A may be driven forward at every third pick or shot of weft-threads forcing the lay full up, and thereby producing a series of terry or pile loops at the stated intervals, the construction, arrangement, and

15 adjustment of my invention are as follows: The shaft A, when it is desired that the loop shall be formed at every third shot of the shuttle, is arranged to revolve by a proper adjustment of the gearing three times while the cam shaft

20 N' revolves once. When the cams *h* of the cam-shaft N' are in any position other than an upright position, the lower arm, E', is at rest, being borne down and held in that position by the weight *e*. As a natural consequence, by

25 reason of the pivotal bearing at *g*, the knee of the arms E E' is thrown forward, while the journal-boxes F of the shaft A, being firmly fixed to the arms E E', are thrown back, and the shaft A, while revolving in this position,

30 produces, by means of the reed bar or lay H, but a partial beat of the picks, one throw of the shuttle being made to each revolution of the shaft A. When, however, the cams *h* of the cam-shaft N', by the revolution of the shaft,

35 begin to assume an upright position, pressing against the lower edge of the arms E', as shown in the drawings, the arms E' are gradually raised until they assume a horizontal position, and thereby, by reason of the pivotal bearing

40 *g*, throw the boxes F, adjusted to the extreme upper end of the arms E and containing the crank shaft A, completely forward. Then the said shaft, revolving to the proper point, produces a full beat of the lay H and makes in

45 the fabric the terry or pile loop at the desired interval. Although I have described the adjustment as producing the terry-loop at an interval of every third weft-thread, my devices can be adjusted to produce the result, by

50 proper arrangement of gearing, at any desired interval.

The length of the terry-loop I regulate by means of the screw *l*, adjusted, as shown in the accompanying drawings, to the journal-boxes

55 F. By screwing down the screw the terry-loop is shortened by the shaft A being prevented from going as far back as it otherwise would by reason of the lower end of the screw coming in contact with the loom-frame, as at

60 *o* in Fig. I, consequently allowing the short beats of the picks to be driven more nearly full up. When the screw *l* is screwed up, the arms E' fall fully down when released from the cam *h* and throw the shaft A full back, and

65 this produces an extremely long terry-loop. By this means a terry-loop of any desired length can be produced.

When it is desired to throw the terrying devices out of operation and to weave a plain fabric, the lever S, connecting with the lug *t* 70 by means of rod *r*, as shown in Fig. IV, is depressed, the lug *t* thereby engaging the movable journal-box F, and, preventing the backward motion, holds it firmly in the position shown in Fig. IV, and allows of the lay H beating full up at every revolution of the shaft A. 75 This device for throwing the terrying devices in and out of gear, as shown in Fig. IV, is applied or not to the machine, as shown in the other figures, as desired. 80

I have shown and described a crank and cam shaft having two cranks and three cams. This is a convenient number in a loom of ordinary size; but I do not limit myself to any particular number, as my invention can be 85 operated with more and in some cases less. I have also described and shown a journal-box firmly attached to the upper extremity of the arm E. This is a desirable form; but I do not limit myself to this form—*i. e.*, to a movable 90 journal-box containing the crank-shaft firmly fixed to the upper extremity of the arm or lever E—but also claim as my invention the movable journal-boxes containing the crank-shaft, whether firmly affixed to the arm or lever E 95 or whether working to and fro on a horizontal plane or rail and merely loosely connected by a pin or otherwise with the said arm or lever for the purpose of the motion or movement.

Having thus described my invention, what I 100 claim, and desire to secure by Letters Patent, is—

1. The combination of a crank-shaft, A, provided with cranks *b*, the lay H, the rods or arms *a*, the movable journal-boxes F, containing the crank-shaft A, the arms or levers E E', 105 pivoted as at the point *g*, the shaft N', provided with cams *h*, and the weights *e*, substantially as herein shown and described.

2. The combination of the movable journal-boxes F, the crank-shaft A, the rods *a*, the lay H, the arm or lever E, the pivot *g*, the shaft N', the cams *h*, and the lever S, the lug *t*, and the rod *r*, substantially as set forth and 115 described.

3. The combination of the movable journal-box F with the arm E, pivoted as at *g*, and having the screw *l*, substantially as shown and described.

4. The combination, with the movable journal-boxes F, the crank-shaft A, the rods *a*, and the lay H, of the arms or levers E E', pivoted as at the point *g*, the adjustable screw *l*, the shaft N', provided with cams *h*, the weights *e*, the lever S, rod *r*, and the lug *t*, adjusted 120 to the upright C', substantially as herein shown and described. 125

In testimony whereof I have hereunto set my hand this 14th day of July, A. D. 1886.

NORTH ALBERT WOODHEAD.

Witnesses:

WM. B. HILT,
JAMES I. COMLY.