(No Model.) 2 Sheets—Sheet 1

F. PARSONS & P. GOLDSCHMIDT.

WARP BEAMING MACHINE.

No. 584,956. Patented June 22, 1897.

Fig. 1

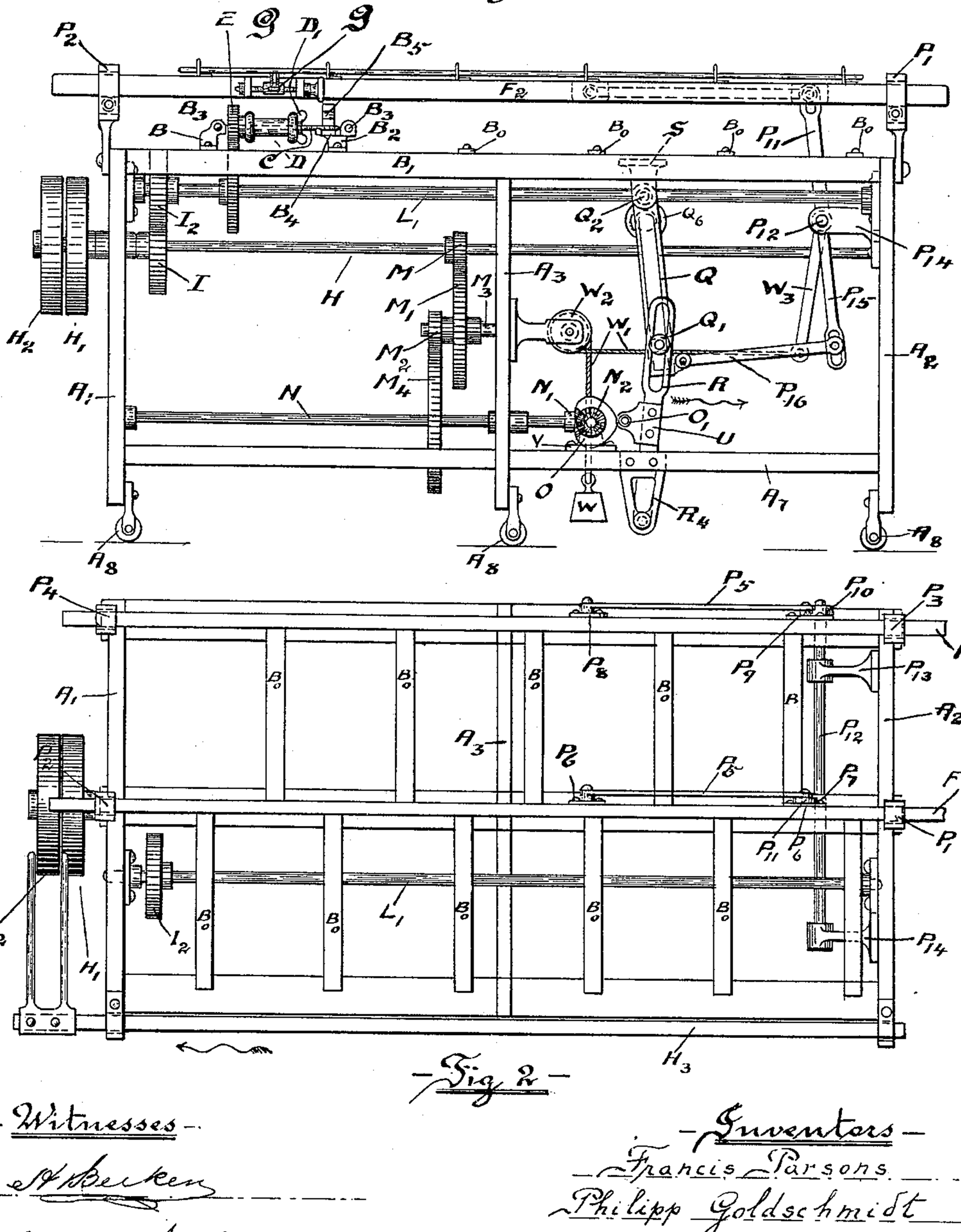

Fig. 2

Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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Fig 3

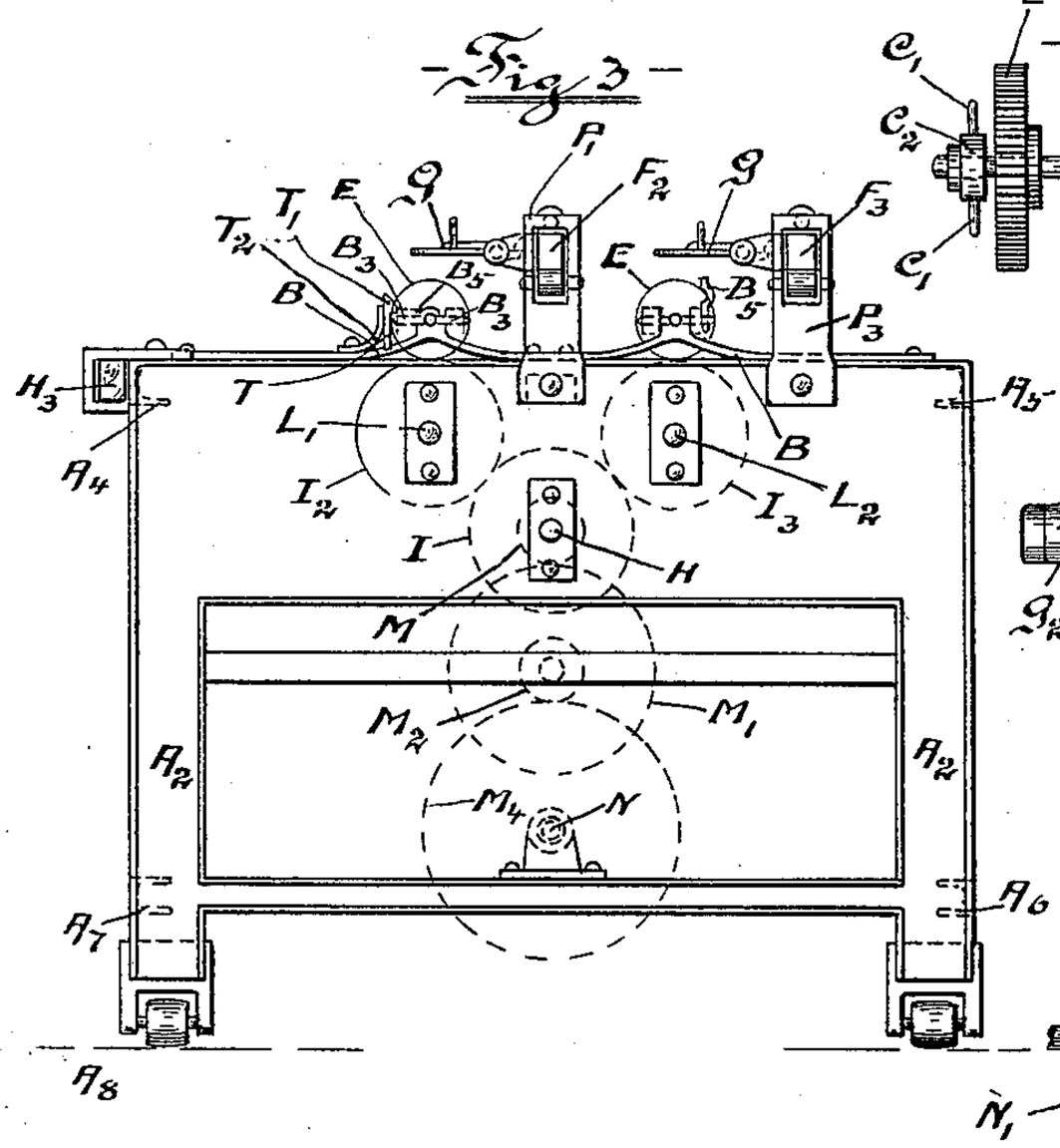


Fig 4

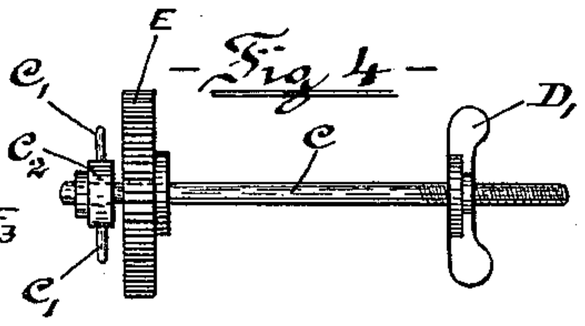


Fig 5

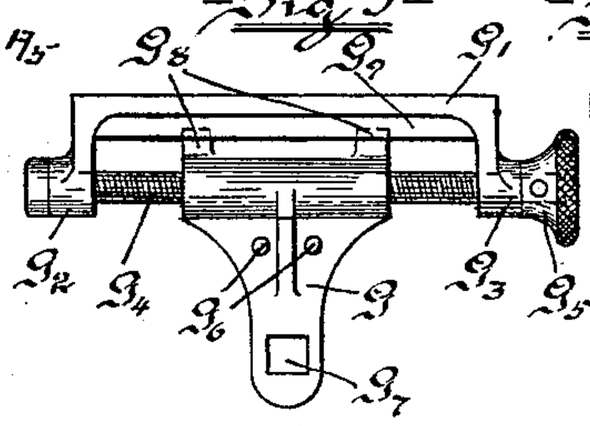


Fig 6

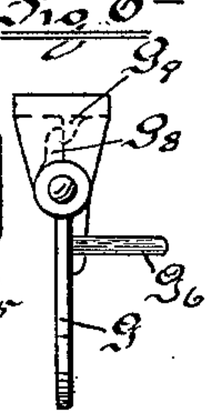


Fig 7

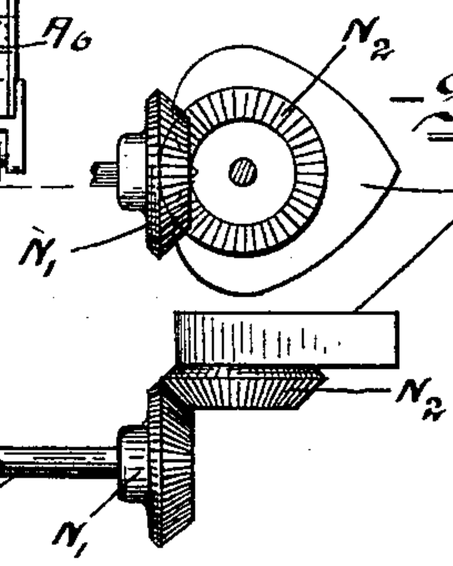


Fig 8

Fig 9

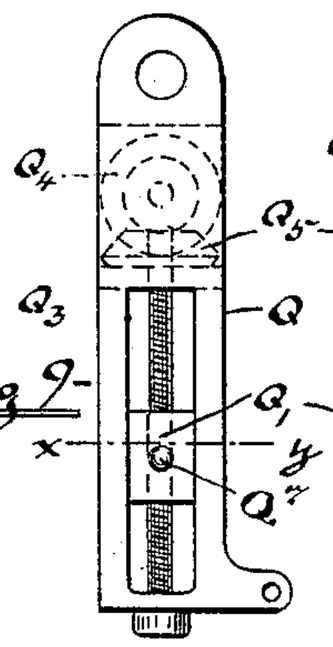


Fig 10

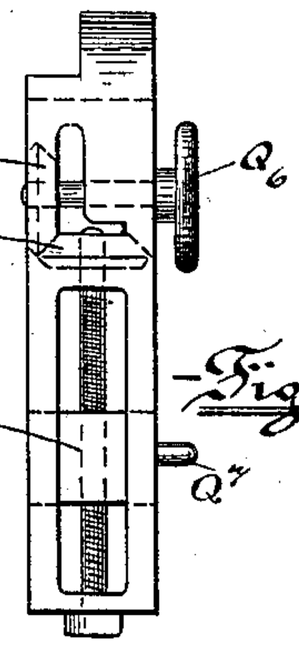
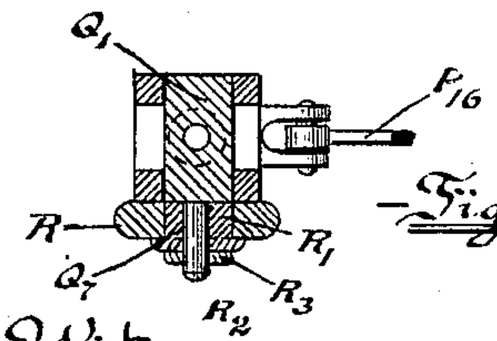


Fig 11



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UNITED STATES PATENT OFFICE.

FRANCIS PARSONS AND PHILIPP GOLDSCHMIDT, OF PATERSON, NEW JERSEY, ASSIGNORS TO HERRMAN SCHIFFER AND ALFRED SCHIFFER, OF SAME PLACE.

WARP-BEAMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,956, dated June 22, 1897.

Application filed June 26, 1896. Serial No. 597,002. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS PARSONS and PHILIPP GOLDSCHMIDT, citizens of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Warp-Beaming Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The warp-beaming machine as invented by us possesses the merit of being an individual mechanism, working and operating as a mechanical entity, and can be attached to any warping-mill and beam the warps from said mill—in other words, unwind the silk threads gathered in the warp from the warping-mill and wind them on a number of warp-rolls mounted on our machine, in the present instance to the number of nine, this number having from practical experience been found by us to be the most convenient number for the operator to adjust and control. That, however, the machine constructed by us can be built so as to operate more or less than nine warp-rolls without departing from the spirit of our invention is apparent.

As the principle of unwinding the warp from the warping-mill is so simple and has been explained and outlined in prior inventions, it will be unnecessary to give more than a passing reference to it, and suffice it to say that from a warping-mill in front of which our machine has been placed the warp is conducted to each individual warp-roll and there evenly wound on the said warp-roll.

In our description we will refer to the accompanying drawings, where like letters of reference indicate corresponding parts in the different views.

Figure 1 shows a front view of our machine; Fig. 2, a top view of Fig. 1; Fig. 3, an end view of Fig. 1; Fig. 4, a front view of the pivoted rod carrying the warp-roll; Fig. 5, the thread-guide; Fig. 6, a side view of Fig. 5; Fig. 7, a side view of the cam operating the roller attached to the traverse-regulator; Fig. 8, a top view of Fig. 7; Fig. 9, a side view of the upper link of the traverse-regulator; Fig. 10, an end view of Fig. 9, and Fig. 11 a sectional view on line $x\ y$ on Fig. 9.

The machine is constructed as follows: On a frame, riveted together of end pieces A′ and A^2 and middle piece A^3 and braces A^4, A^5, A^6, and A^7 and mounted on rollers A^8, are attached a series of bearings B, of which one is shown in Fig. 1 complete, otherwise only indicated in Figs. 1 and 2 by their pedestals B^0, as they are all similarly constructed and operated in the same manner. Said bearings (referring to the one marked B in Fig. 1) have two supports, the one marked B^2 having two eyes B^3, in which are pivoted the pivot-points C′ on the pivoted rod C, (see Fig. 4,) the other support B^4 carrying the free end of the pivoted rod C, Fig. 4, and furnished with a pivoted cap B^5 to enable the operator to lift the pivot-rod C out of its bearing B^4. This cap B^5 is thrown open in Fig. 1 and in the rear of Fig. 3, while in the front bearing it is shown closed, and when closed is held down by a tongue T, with a projection T′, bearing on the end of cap B^5, and said tongue T is kept in its position by a spring T^2, and as the cap when about to be closed presses against the upper curved part of the tongue it will gradually force it back till it has reached the projection, when the spring will force it inward over the end of the cap, and thus lock it. When the said rod turns on its pivot-points C′, it will, as will be explained later, be lifted out of gear, the operator thus being enabled, without stopping the machine, to adjust anything that may be out of order.

The pivoted rod C (see Fig. 4) supports the warp-roll D, on which the warp is being wound, said roll being slipped over the screw-cut end and secured up against the gear-wheel E by the wing-nut D′. The pivoted rod C moves loose in the bush C^2, having pivot-points C′, the bush consequently acting as a bearing, the other screw-cut end of rod C moving in the part of bearing B′ called B^4. The motion to this rod C is given through the medium of

the gear E, firmly attached to the rod, and, meshing with its companion gear, becomes an element of the whole gearing system, as will appear later on. The even distribution of the warps on the warp-roll D as it comes from the warping-mill is caused by the guide G, composed of the following parts, (see Figs. 5 and 6:) A bracket G′, furnished at each end with two bushes G^2 and G^3, is attached above and behind each warp-roll on the bars F^3 and F^2. (See Fig. 3.) Moving loose in the holes drilled in these bushes is a screw-cut rod G^4, operated by a gnarled knob G^5, and supported on the screw-cut rod G^4 is the guide proper, G, having two pins G^6, between which the warp passes, being then led down through the square hole G^7, from whence it passes onto the warp-roll. The guide G is of course screw-cut to match the screw-cut rod G^4, so as to enable operator to adjust it relative to its position with the warp-roll. It is also furnished with two lugs G^8, that rest on a rib G^9 of the bracket, that tend to hold it in a horizontal position.

We shall now proceed to show how motion is given to the warp-rolls and how the guides are moved to and fro across the face of the warp-rolls, thus distributing the warps evenly thereon, and in so doing shall first describe the individual component elements and subsequently their coöperation with each other in order to attain the above-stated object.

On the main driving-shaft H are attached two pulleys—a loose one H′ and a fast one H^2. A gear-wheel I is keyed on this shaft H, which gears into two companion gears I^2 and I^3, keyed, respectively, on shafts L′ and L^2, said shafts having gears meshing into each of the gear-wheels E, attached to the pivoted rods C, carrying the warp-rolls D. This gear system thus furnishes the revolving motion for the warp-rolls. The motion transmitted to the guides is supplied in the following manner: Keyed to the main shaft H is a pinion M, meshing with a gear M′. Said gear M′, connected with a pinion M^2, revolves around a stud M^3, secured to the middle frame A^3. The pinion M^2, meshing with a gear M^4, imparts motion to a shaft N, carrying at one end a miter-gear N′, which, meshing with its companion gear N^2, (see Figs. 7 and 8,) imparts motion to a cam O, acting on a roller O′.

In order to facilitate the explanation of how motion is transmitted from the cam O to the guides G, it will prove more satisfactory to begin with the guides. These are attached, in the present instance to the number of nine, corresponding to the number of warp-rolls, to two traverse-bars F^2 and F^3—five to the front bar F^2 and four to the rear bar F^3. Each of said bars passes through two supports P′, P^2, P^3, and P^4, each support having a roller on which the bar rests to render the motion frictionless. Secured to each bar is a double-eyed rod P^5, pivoted at its two ends loosely to two bearings, said rod attached to the bar by means of two bearings in preference to one, for the sake of having a good steady hold on the bar, (secured one pair on each bar)—P^6 and P^7 on traverse-bar F^2 and P^8 and P^9 on traverse-bar F^3. Of these P^7 and P^9 have two link-bars P^{10} and P^{11}, bearing around the same pin, having one eye of each of the bars P^5. The said link-bars P^{10} and P^{11} are at the other end keyed to the rod P^{12}, supported and moving in brackets P^{13} and P^{14}. Keyed to this rod P^{12} is, furthermore, a link-bar P^{15}, to which is movably attached a link-bar P^{16}, said link-bar P^{16} pivoted to the traverse-regulator Q, (shown in detail in Figs. 9, 10, and 11,) and attached pivotally to the movable stud Q′, sliding up and down in said traverse-regulator, as will be more fully explained later on, is a bush R′, moving in the guide R, to which is finally riveted the bearing supporting loosely the roller O′, acted upon by the cam O. It will consequently be seen that traverse-regulator Q and link-bars P^{16} and P^{15} form a linked parallel movement, moving around the two fixed centers formed by the rod P^{12} and the stud or pivot Q^2, which attaches the traverse-regulator to a bearing S. The length of the "stroke," as it might be called, or the distance traveled by the guide G from one end of the warp-roller D to the other, thus winding the warps on, will be regulated by lengthening or lessening the distance of the stud Q′ from the pivot Q^2 of the bearing S, and this is done by constructing the traverse-regulator Q in the following manner, (see Figs. 9, 10, and 11:)

Inclosed and sliding in the space cut out in the traverse-regulator, as seen in the sectional view, Fig. 11, is the nut Q′, guided and moved by the screw Q^3, operated by the hand-wheel Q^6, acting on miter-gears Q^4 and Q^5, located in the upper part of the traverse-regulator. The said nut Q′ has a pin Q^7 moving loose in a square bush R′, said bush sliding up and down in the guide R and held there by a washer R^3. The guide R itself is pivoted in a bearing R^4 and has, as before stated, a bracket U attached, carrying the roller O′, acting on cam O.

The movement in the direction of arrow is accomplished by the cam acting on the roller O up to the point of the cam in the position shown in the drawings, while the return movement is caused by a weight W, attached to a cord or chain W′, coiled once around a pulley W^2, the other end of said cord or chain attached to a link-rod W^3, keyed fast to the balance-rod P^{12}.

The whole motion of the machine will thus be seen to be the following: When a belt connected with some motive power has been slipped on the loose pulley H′, and by the operator manipulating the bar H^3 has been moved to the left in the direction of arrowhead, so that the belt is transferred to the fast pulley H^2, keyed on the shaft H, the gear-wheel I will transfer motion to the two

shafts L′ and L², carrying the gear-wheels that mesh with the gear-wheel (for example, E in drawings) attached to each individual pivoted rod C, carrying a warp-roll, and will cause these to revolve and have the warps wound on them. The second movement during the revolving of the warp-rolls of distributing the warps evenly over the face of the warp-roll is promulgated by pinion M, meshing with its companion gear M′, attached to and moving with pinion M², meshing with its companion gear M⁴, said gear M⁴ attached to the shaft N, carrying at its end the miter-gear N′, (see Figs. 7 and 8,) meshing with its companion gear N², to which is attached the cam O, loosely revolving in and supported by bearing V and transferring a forward motion in the direction of arrow to the guide R through the medium of the roller O′, attached to said guide R, and said guide R, connected with the traverse-regulator Q by the nut Q′, working in the bush R′, sliding up and down in the guide R, moves thus the traverse-regulator, and with this the linked parallelogram composed of traverse-regulator Q, link-rods P¹⁶ and P¹⁵, moving around the fixed centers located in, respectively, rod P¹² and stud Q², and rod P¹² having keyed on it the two link-rods P¹¹ and P¹⁰, attached to their respective traverse-bars F² and F³, the latter will be given the lateral motion necessary to wind the warps evenly on the warp-rolls, which was the desired object.

What we then claim as new, and desire to secure protection for, is—

1. A movable warp-beaming machine of the character set forth, provided with a series of guides, and means for automatically moving the same, each guide having a pair of vertical pins and a guide-hole, and a pair of stop-lugs, a guide-bracket supporting the guide, a rib on the guide-bracket, a screw-cut pin journaled in the guide-bracket and engaging a similarly screw-cut aperture in the guide, said guides operating in combination with a corresponding number of individually-adjustable warp-rolls and means for rotating same, for the purposes as set forth as described and illustrated.

2. A movable warp-beaming machine of the character set forth, provided with a series of guides supported in guide-brackets, said brackets being attached to traverse-bars, and means for automatically moving the said traverse-bars, a series of individually-adjustable warp-rolls mounted on pivoted rods, a loose bush having two pivot-points supporting one end of each of said pivoted rods, bearings for said pivot-points and means for rotating said pivoted rods for the purposes as set forth, substantially as described and illustrated.

3. A movable warp-beaming machine of the character set forth, provided with a series of guides, operating with a corresponding series of warp-rolls, a driving-shaft operating with a continuous gearing, a pair of miter-gears, terminating said gearing, a cam attached to one of said miters and driven thereby, in combination with a pivoted guide-arm, a series of links connected together in the shape of a parallelogram pivoting around two fixed centers, two arms prolonged as an extension of one side of the said parallelogram, two traverse-bars, each furnished with a series of guide-brackets supporting guides, two links pivoted on supports attached to the said traverse-bars, the support on each traverse-bar, adjacent to the two arms extending from the parallelogram, having said arms pivoted thereunto, for the purposes as set forth, substantially as illustrated and described.

4. A movable warp-beaming machine of the character set forth, provided with a series of guides, operating with a corresponding series of warp-rolls, a driving-shaft operating with a continuous gearing, a pair of miter-gears terminating said gearing, a cam attached to one of said miter-gears and driven thereby, a pivoted guide-arm having a roller acted upon by the said cam, a series of links, connected together in the shape of an open parallelogram, pivoting on two fixed centers, a traverse-regulator forming one side of the open parallelogram having adjustable connection with the said guide-arm, two arms prolonged as an extension of the side of the said formed parallelogram opposite to the side formed by the traverse-regulator, two traverse-bars having pivoted links attached connecting them with said extension-arms, in combination with an arm fixed at one end to the shaft, forming the fulcrum for the series of links connected together forming the parallelogram and the traverse-bars, a cord or chain attached to the other end of said arm, a pulley having said cord or chain coiled around it and a weight attached to said chain or cord, for the purposes as set forth, substantially as illustrated and described.

In testimony that we claim the foregoing we have hereunto set our hands this 17th day of June, 1896.

FRANCIS PARSONS.
PHILIPP GOLDSCHMIDT.

Witnesses:
GEO. M. FEDER,
AUGUST M. TRESCHOW.