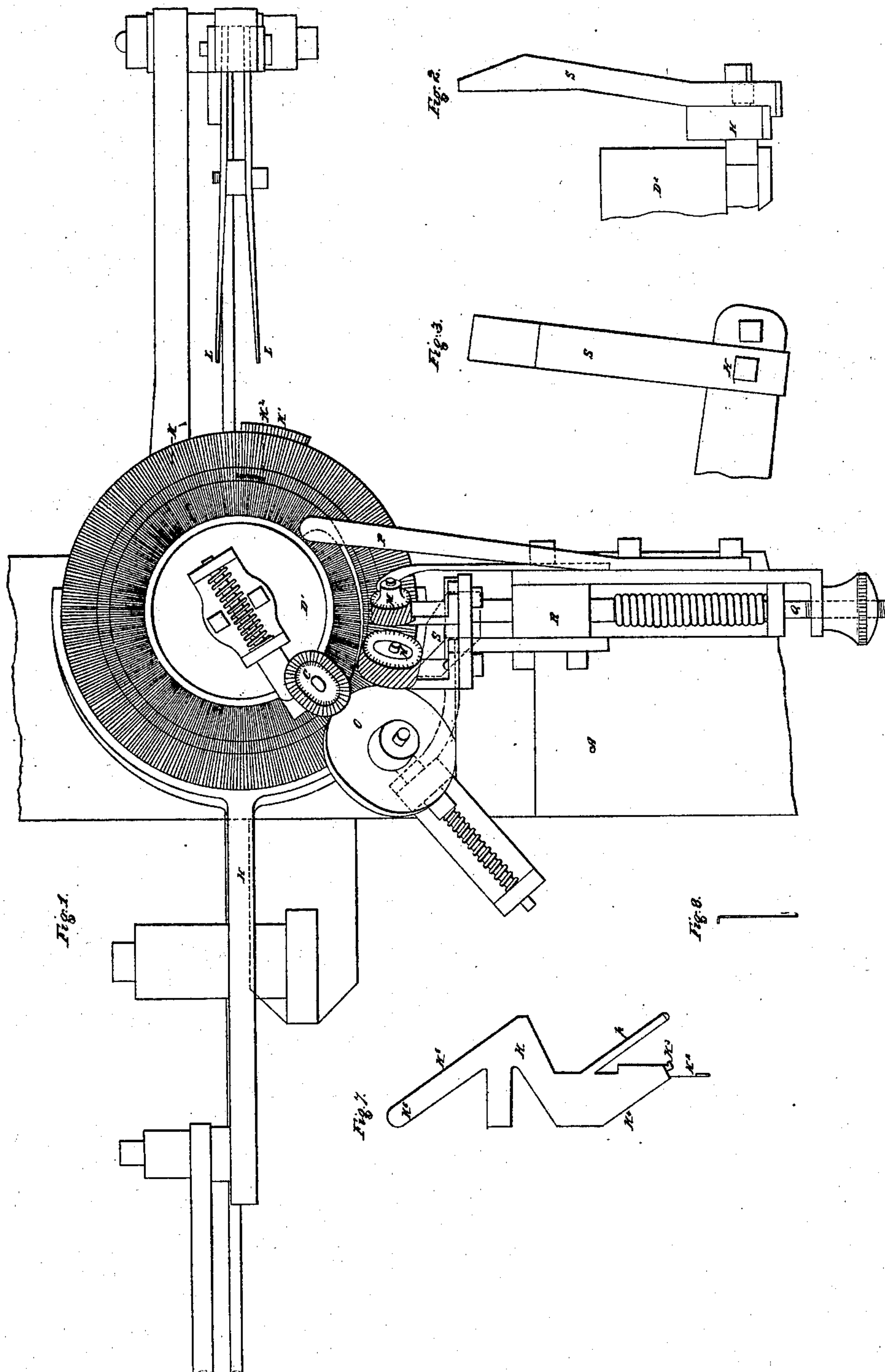


D. SCATTERGOOD.
CIRCULAR KNITTING MACHINE.

No. 39,499.

Patented Aug. 11, 1863.



Witnesses:
Wm. H. Hanson
Jm. P. Weeks

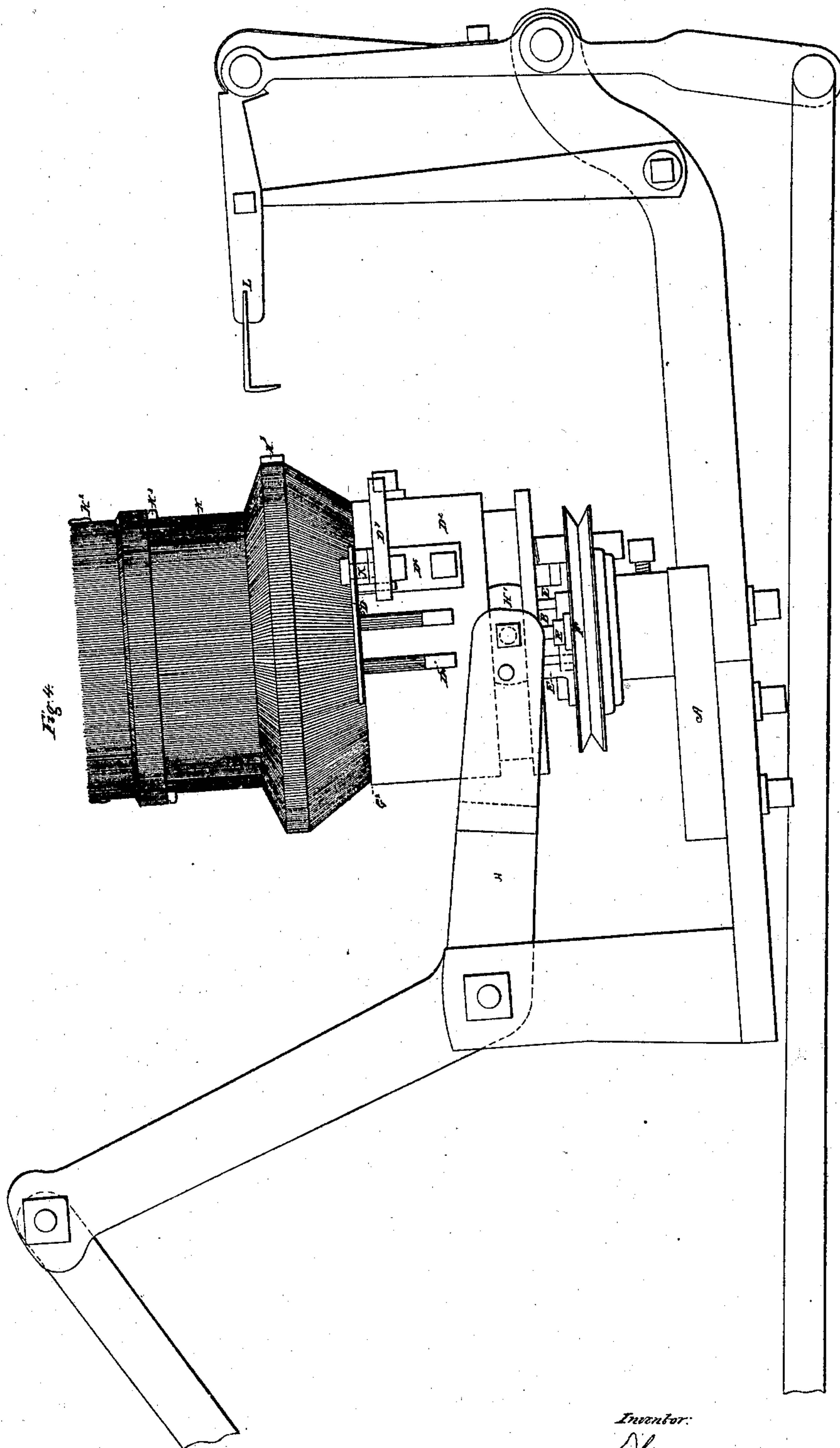
Inventor:

David Scattergood
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Witnesses:
Wm. H. Harrison
Wm. F. Brooks.

Inventor:

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UNITED STATES PATENT OFFICE.

DANIEL SCATTERGOOD, OF NOTTINGHAM, ENGLAND.

IMPROVEMENT IN CIRCULAR KNITTING MACHINES.

Specification forming part of Letters Patent No. 39,499, dated August 11, 1863.

CASE A.

To all whom it may concern:

Be it known that I, DANIEL SCATTERGOOD, of Nottingham, England, machinist, have invented Improvements in Circular Frames for the Manufacture of Looped Fabrics; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the figures and letters marked thereon.

This invention consists of certain arrangements of machinery in circular frames, or "roundabouts," as they are termed in the trade, as hereinafter described, whereby shirts, drawers, hose, and other articles made thereon may be fashioned or narrowed in order to impart the desired shape to such articles without their being cut, and the parts united after the cutting to form the fashion, and whereby such narrowed goods are finished, as far as the fashion is concerned, before being removed from the frame. The heads of the frames may be mounted to work in a vertical, horizontal, or inclined position, as desired. In order to produce the fashion a certain number of needle plates or carriers with their needles are removed from the circle of needles, yet the same space between every two needles in the circle is preserved while the needle plates or carriers have constantly a bearing or support at back upon a hollow conical collar and conical supports, which are moved to present a circle of decreased diameter when the needle plates and needles are removed, and which are again moved in a contrary direction to afford bearings of increased diameter when the needles are replaced. The usual loop and dividing, landing, and knocking-over wheels are moved to perform their functions, whatever be the diameter of the circle of needles, all as hereinafter fully explained.

The manner in which I carry my invention into effect is shown in the accompanying drawings, in which the circular frame is supposed to be set horizontally.

Figure 1 is a front view of a circular frame or roundabout machine constructed according to my invention. The machine shows a complete circle of needle plates, carriers, or jacks, but with only a few of the needles, K^2 , inserted. Fig. 4, Sheet 2, is a side view, and Fig. 5, Sheet 3, is a sectional view, of the same with

some of the parts omitted. Figs. 2 and 3 show a side and edge view of an apparatus used to move the loop wheels into their proper position when the diameter of the circle of needles is altered. Fig. 6 is a plan of two of the needle-plates riveted together, for the purpose of being taken out when narrowing is to be effected.

Similar letters refer to similar parts in all the figures.

A is a plate carried on standards (not shown) forming the frame-work on which the machine is fastened.

B is a spindle, passing through and fastened to a boss, A' , on the frame A. The outer end of this spindle has a bracket, b' , fixed upon it, which carries an axle, b^2 , on which the knocking-over wheel C works. A spring, C' , presses this wheel outward. The bracket carrying the axle b^2 has two rods, C^2 , fastened to it, the inner ends of which rest upon the inside of the conical collar D' . The inner end of the spindle B has a collar, b^3 , formed on it.

F is a pulley on the spindle B, by which motion is given to the machine through an endless belt.

D is a pipe, which has a hollow pulley, D^2 , with a groove, D^8 , and a disk, D^3 , cast upon it. The pulley D^2 and disk D^3 are turned to the shape shown at Fig. 3, and then a groove-collar, G, is slipped over the pipe D. After this collar is in its place a conical collar, D' , is cast or otherwise fastened upon the pipe D, as shown at Fig. 3. This conical collar is turned both inside and outside, and the whole pipe with its fittings is free to move and turn freely on the spindle B.

H is a forked lever carrying two studs, H' , which take into the groove D^8 . By means of this lever the pipe D is made to move up and down as the diameter of the circle of needles is required to be greater or less. The groove-collar G is prevented from moving in and out with the pipe D by means of three rods, E, fastened at one end to the pulley F, and at the other to the grooved collar G.

O is the presser-wheel; M, the loop-wheel; N, the dividing-wheel; P, the push-back. Q is the star screw-rod with spring. R' is the thread-guide. These parts are all attached to the star screw-rod Q, carried by a bracket,

R. The rod Q is moved to and from the axis of the frame by a wedge-piece, S. (Shown detached in edge and side views at Figs. 2 and 3, and in plan at Fig. 1.) This wedge-piece is attached to the lever H, moved by hand or foot-levers, or in any other convenient way. L is a forked and hooked lever for taking out the needle-plates. It is jointed to a rocking lever, l^1 , working on an arm fastened to the main framing A. The rocking lever l^1 is worked by a rod, l^2 , connected with a foot or hand lever. K is a needle plate, carrier, or jack, (shown detached at Fig. 7,) carrying the needle K^2 . The edges K^4 K^5 K^6 are so shaped as to form parallel lines with the conical bearings at D^1 D^2 D^3 .

In the needle-carrier shown at Fig. 7 there is an additional conical guide, p . When this guide is added, I affix a collar by means of arms on the outside of the hollow pulley D^2 . This collar has a constant bearing upon the outside of the conical guide p , moves up and down with the conical collar and parts connected therewith, and keeps the needle-carriers close upon their conical bearings. The arm K^3 of the needle-plate takes into the grooved collar G to keep the needle-plates K from rising or falling with the movement of the pipe D. The needle plate K from the outside to the line shown by the dotted lines K^9 is of equal thickness, the inner edge being thinner to allow of the expansion or contraction of the circle without altering the gage of the machine. Where the needle-plates are arranged for being taken out singly, I attach a hook, as at K^1 , Fig. 5, but where two are to be removed together, I connect them by a pin or otherwise, to afford a hold for the hooked levers L, whereby they are drawn out when required.

D^4 D^4 are slots cut in the hollow pulley D^2 to allow of the needle-plates being taken out.

D^5 is a movable locking-plate which holds the needle-plates K from falling out.

D^6 is a bracket fastened to the pulley D^2 , having a pin, x , on it, on which the locking-plate D^5 turns.

D^7 is a spring holding the locking-plate fast on the needle-plates. This locking-plate is turned back when it is required to take out or put in any of the needle-plates.

The needle-plate K is made with a clip forming a slot at the end, in which the needle is fixed.

The needles are made with a bend at the lower end, as shown at Fig. 8. The point of the bend enters into a recess cut in the needle-plate K, and thus insures the length of the needles in the frame being all alike when they are in their place. A spring fitting the needle is inserted in the slot at the top of the needle-plate, and then a small wedge, K^3 , is forced down so that the needle is firmly fixed, and still may be readily removed by taking out the wedge and spring.

G' is a thin plate of metal fastened to the parts D^1 , D^2 , and D^3 . Saw-gates are cut in

them and the thin plate driven in. The two needle-plates next to this thin plate require to be thinned down so that the space occupied by the three may be the same as if only the two needle-plates were present. This thin plate assists to keep the needle-plates parallel with or at right angles to the axis of the pipe D.

It is unnecessary to give any particular information of the parts that are old and belong to the working of the ordinary round-about frame.

The peculiarity of my invention consists in the arrangement of the machinery in such manner as to allow of the number of needles in the circle being altered without altering the gage or disturbing the perfection of the work. I am enabled at the same time to produce perfect narrowed work, narrowing the stitches from one needle to another, as in ordinary fashioned work.

To narrow the work after the plain part is produced—and to the production of which plain part I make no claim, nor to the machinery whereby the plain part is produced—I leave a few needles standing in the center of the narrowings and take out the needles, (two needles from each side of this center,) two being necessary and sufficient for the ordinary narrowing, but more or less may be removed, according to requirement. To do this I stop the frame, and having lifted up the rocking plate D^5 , and narrowed the loops for the needles to be taken away on two other needles, I take out the required number of needle-plates by means of the hooked levers L, or they may be removed by hand. The rocking plate D^5 is now fastened down, the levers acting on the studs H' are moved to press out the pipe D, which, through the conical parts thereon, acting on the conical edges of the needle-plates, moves these plates equally all round the circle and brings them fitting close and tightly together into a smaller circle, the needles being now exactly the same distance from each other as before any needle-plates were taken out. The thin plate G' keeps the needle-plates from moving altogether round. The wedge S, acting through the lever H, brings the presser-wheel, loop-wheel, dividing-wheel, push-back, and thread-guide into the position necessitated by the smaller diameter of the circle of needles, and at the same time the projections C^2 , acted upon by the inside of the conical collar D' , bring the knocking over wheel nearer the center and into the right place for its work. The grooved collar G, being fastened to the pulley F, holds the needle-plates from moving inward or outward with the conical parts on the pipe D, and thus the needles are forced into a smaller or larger circle and the ends kept always at the same height. To return to the larger diameter of the circle of needles the frame is again stopped, the conical collar and conical bearings connected thereto are moved in the contrary direction, and the

needle-carriers with their needles are returned to their former position.

Having thus fully described my invention, I shall state my claim as follows:

The employment, in circular frames or roundabouts, of a cone and conical supports or bearings for the needle jack or carriers, so as to afford them a continuous bearing, whatever the diameter of the circle of needles, and imparting motions to the loop and dividing, landing, and knocking-over wheels so that they shall perform their usual functions, what-

ever the diameter of such circle, all substantially in manner hereinbefore described, whereby fashioned or narrowed work may be produced and finished, as far as the fashion is concerned, before being removed from the frame.

DANIEL SCATTERGOOD.

Witnesses:

THOMAS ASHWELL,

JAS. P. CALVERT,

Both of Nottingham.