No. 676,376. Patented June 11, 1901.

W. I. WHITEHURST.

WIRE WEAVING LOOM.

(Application filed Nov. 9, 1900.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

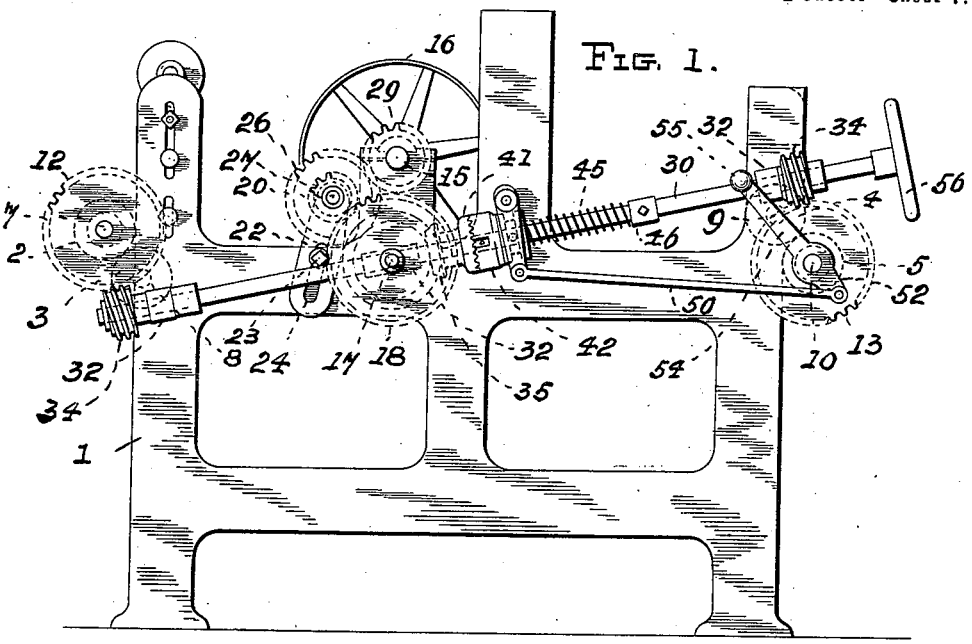


FIG. 8.

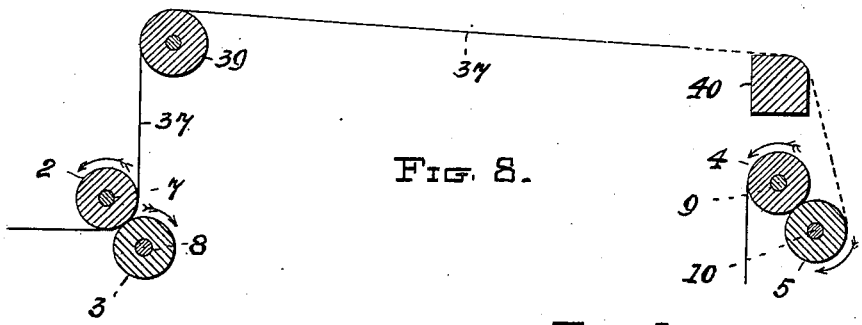


FIG. 4.

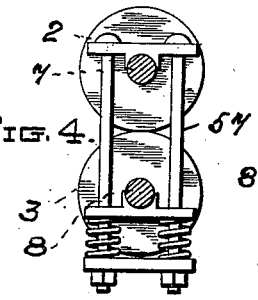
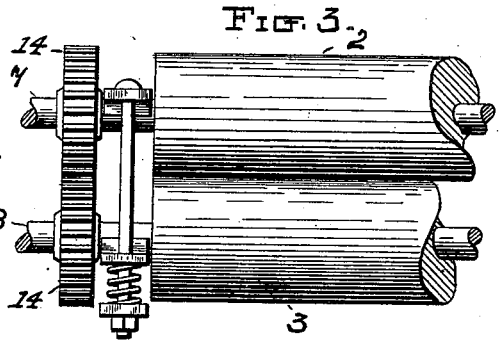


FIG. 3.



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No. 676,376. Patented June 11, 1901.

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WIRE WEAVING LOOM.

(Application filed Nov. 9, 1900.)

(No Model.) 2 Sheets—Sheet 2.

FIG. 2

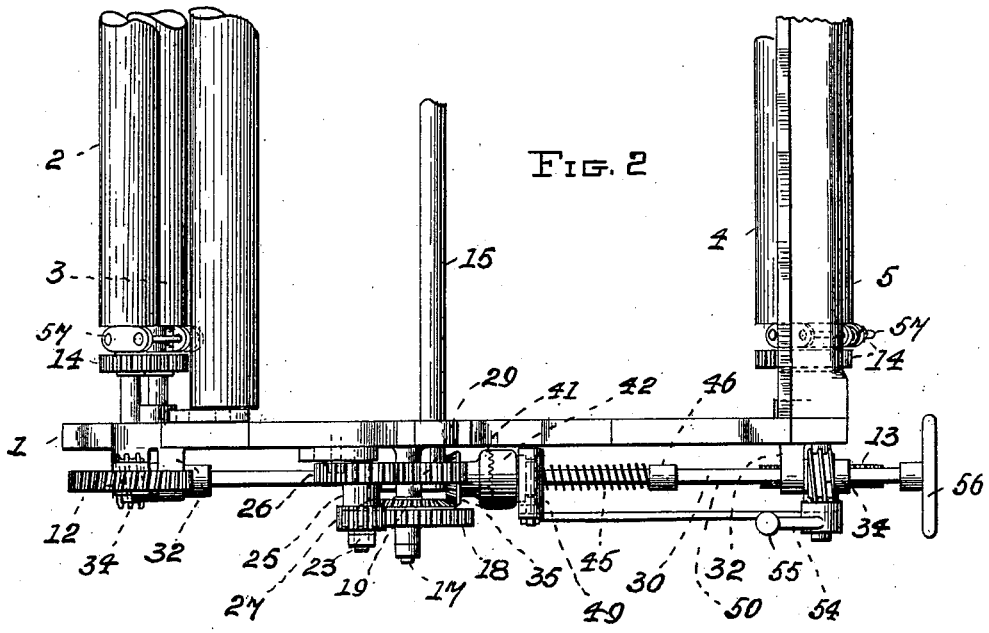


FIG. 5.

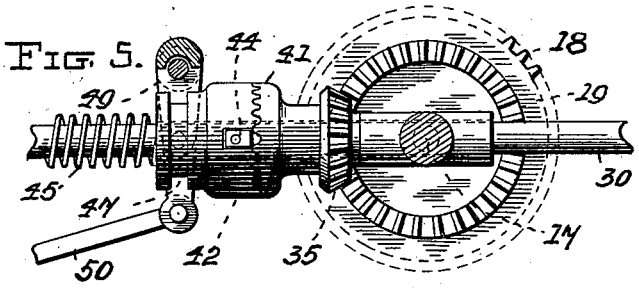


FIG. 7.

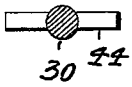
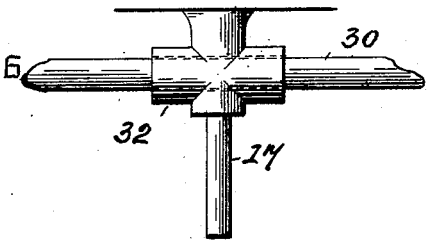


FIG. 6



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UNITED STATES PATENT OFFICE.

WALTER I. WHITEHURST, OF BALTIMORE, MARYLAND.

WIRE-WEAVING LOOM.

SPECIFICATION forming part of Letters Patent No. 676,376, dated June 11, 1901.

Application filed November 9, 1900. Serial No. 35,901. (No model.)

To all whom it may concern:

Be it known that I, WALTER I. WHITEHURST, of the city of Baltimore, in the State of Maryland, have invented certain Improvements in Wire-Weaving Looms, of which the following is a specification.

In the description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is an exterior side view of certain parts of a wire-weaving loom embodying the present invention. Fig. 2 is a top or plan view of the same. Figs. 3, 4, 5, 6, and 7 are enlarged details of the improved wire-weaving loom. Fig. 8 is a skeleton view illustrating the invention.

Referring now to the drawings, 1 is the frame of the loom. 2 and 3 (see particularly Fig. 8) are the let-off and 4 and 5 the take-up rolls, which are of a common diameter and rotated at a common speed by means of mechanism hereinafter described. The warp-wires in the said loom are denoted by a full line and the woven cloth by its dotted extension. (See Fig. 8.) The shafts of the let-off rolls 2 and 3 are represented, respectively, by 7 and 8 and the corresponding shafts of the take-up rolls 4 and 5 by 9 and 10. Secured to the front ends of the shafts 7 and 10 are the worm-wheels 12 and 13, respectively, driven as hereinafter described, and the shafts 8 and 9 receive their motion from the shafts 7 and 10 through the medium of the two pairs of spur gear-wheels 14. (Shown in Figs. 2 and 3 and by dotted lines in Fig. 1.)

15 is the main driving-shaft of the loom, and 16 the driving-pulley.

17 is a stud on the front side of the frame, carrying a loose spur gear-wheel 18, with a beveled gear-wheel 19 on its inner side.

20 is a shaft projecting laterally from the upper end of a bracket 22, which is attached adjustably to the frame 1 by means of a bolt 23 in a slot 24 in the said bracket.

25 is a sleeve loose on the shaft 20, carrying the spur gear-wheels 26 and 27, the latter being in mesh with the spur gear-wheel 18. The other wheel 26 is in mesh with the smaller spur gear-wheel 29, fast on the front end of the driving-shaft 15.

30 is a shaft adapted to rotate in the bearings 32, the center one of which is a part of the stud 17. (See Fig. 6.)

33 and 34 are worms on the shaft 30, in mesh, respectively, with the worm-wheels 12 and 13.

The shaft 30 is driven from the beveled gear-wheel 19 by means of the beveled pinion 35. (See particularly Fig. 5, which is a view looking outward from the frame of the loom.)

By arranging the worms 33 and 34 so as to gear with opposite sides of the worm-wheels 12 and 13 the shafts 7 and 10, with their rolls 2 and 5, are rotated in the same direction, as shown by arrows in Fig. 8.

The warp-wires of the cloth are denoted by 37 in Fig. 8, and after they are let off by the rolls 2 and 3 they pass over the idle roll 39, then over the bar 40, then down to and around the roll 5, then between the rolls 4 and 5 and over the former, and thence to a roll (not shown) upon which the wire-cloth is wound. Now it will be seen that the rolls 2 and 3, which are of the same diameter, are rotated at exactly the same speed as the corresponding ones 4 and 5. Consequently the take-up is the same as the let-off, and a uniform tension on the warp-wires and the wire-cloth is effected.

In order to allow of the let-off rolls 2 and 3 and the take-up ones 4 and 5 being rotated by hand, so as to run back the warp-wires or the cloth or for any other purpose, the beveled pinion 35 is secured to a clutch member 41, which is loose on the shaft 30. The other clutch member 42 is adapted to slide on a feather 44 on the shaft 30 and is backed by the spiral spring 45, which bears against the collar 46.

To provide for the stoppage of the shaft 30, the clutch member 42 has a groove 47, in which is placed a shifting ring 49, connected by the rod 50 to the short arm of the cross-lever 52. The long arm 54 of the said lever has a handle 55, whereby it is operated to throw the movable member of the clutch in or out of gear with the fixed member.

The shaft 30 is furnished with a hand-wheel 56, whereby it may be turned to move the warp-wires and the cloth, as before referred to.

In order that the rolls described may tightly clamp the warp-wires and the wire-cloth, the

shafts of each pair of the said rolls are drawn together by means of the spring-stirrups 57. (Shown particularly in Figs. 3 and 4.)

By having the bracket 22 adjustable in position the train of gearing which gives motion to the let-off and take-up rolls may be changed so as to obtain any desired speed; but in all cases the motion of the said rolls is the same and the wires and the cloth have always a uniform tension.

I claim as my invention—

In a loom, a pair of let-off rolls of a common diameter, spur gear-wheels on the shafts of the said rolls, which are in mesh with each other, and spring clamping mechanism applied to the said shafts to hold the rolls together, combined with a pair of take-up rolls of the same diameter as the let-off ones, and provided like them with meshed spur gear-wheels and spring clamping mechanism, and means to directly effect the joint rotation of one shaft of each pair of rolls, substantially as, and for the purpose specified.

WALTER I. WHITEHURST.

Witnesses:
OREGON MILTON DENNIS,
ESTEP T. GOTT.