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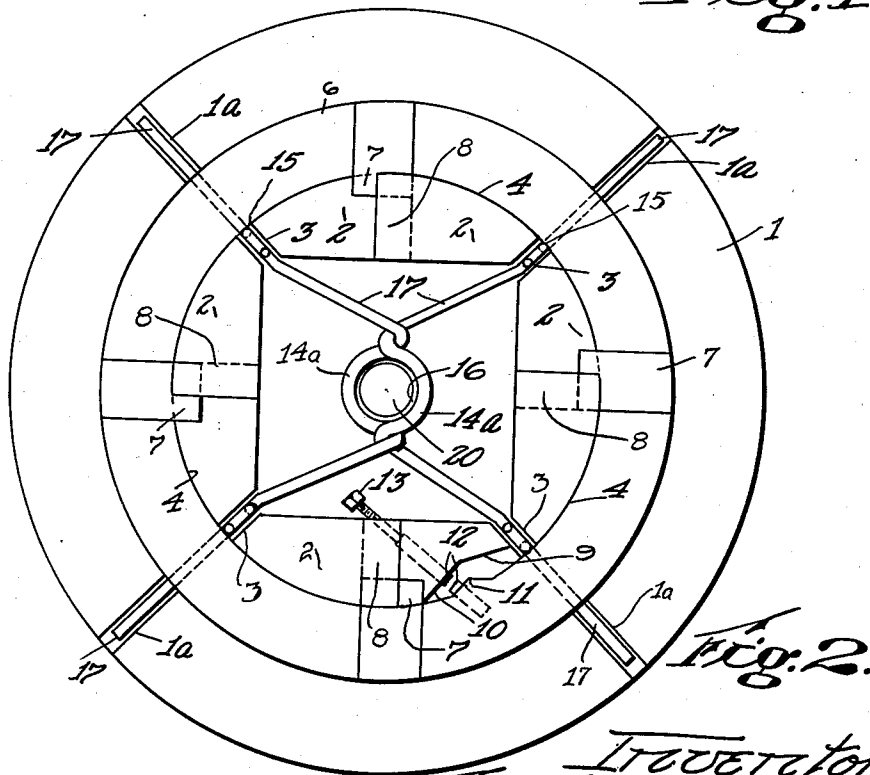
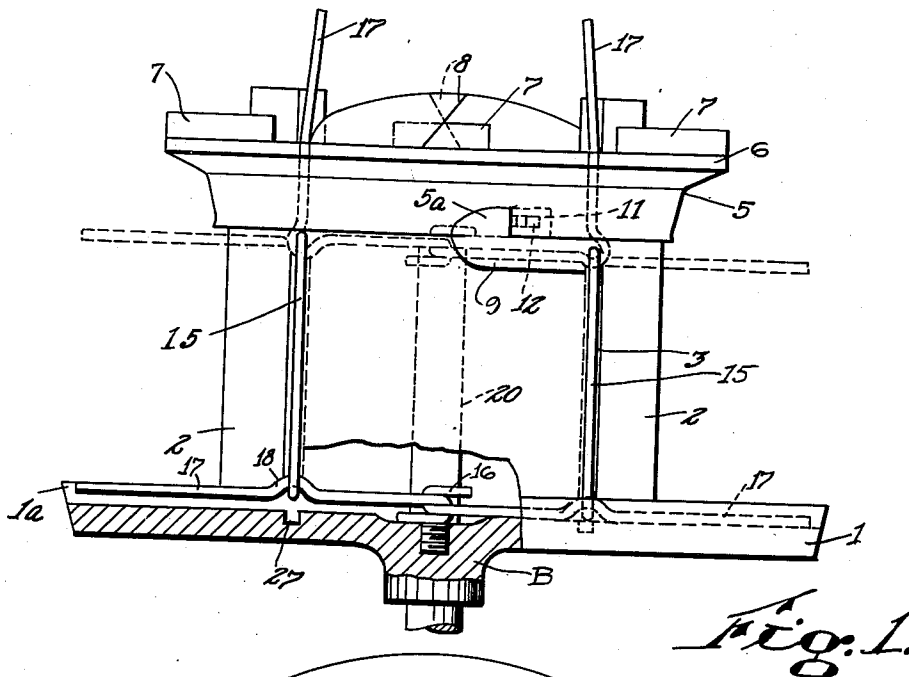
F. N. PERKINS

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COMBINED WIRE COILING BLOCK AND REEL

Filed Feb. 8, 1940

2 Sheets-Sheet 1



INVENTOR
Frank N. Perkins
BY Owen W. Kennedy
ATTORNEY

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2 Sheets-Sheet 2

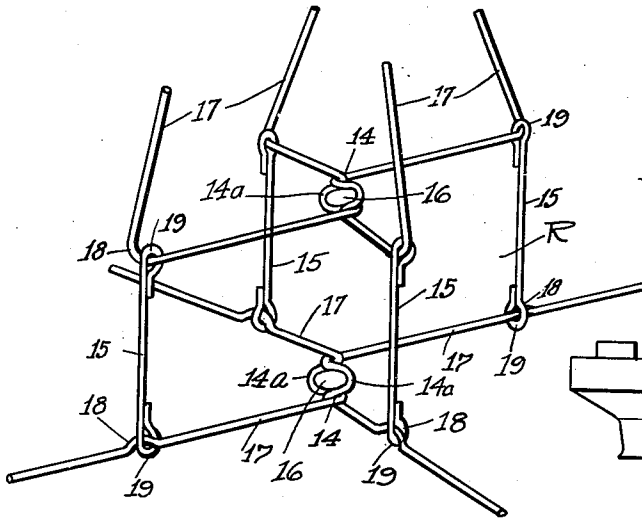


Fig. 4.

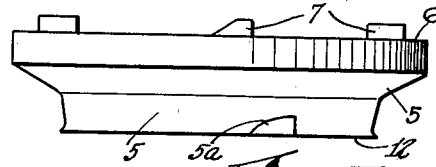


Fig. 5.

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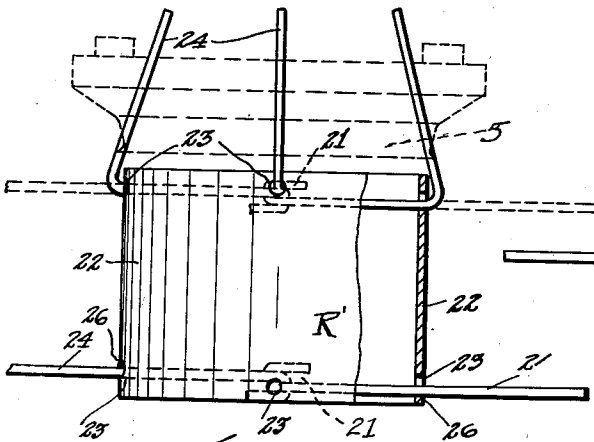
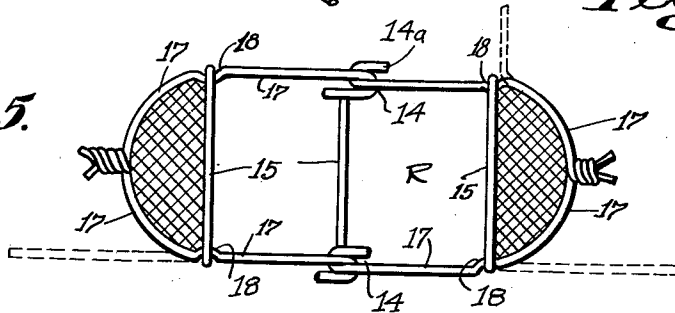


Fig. 6.

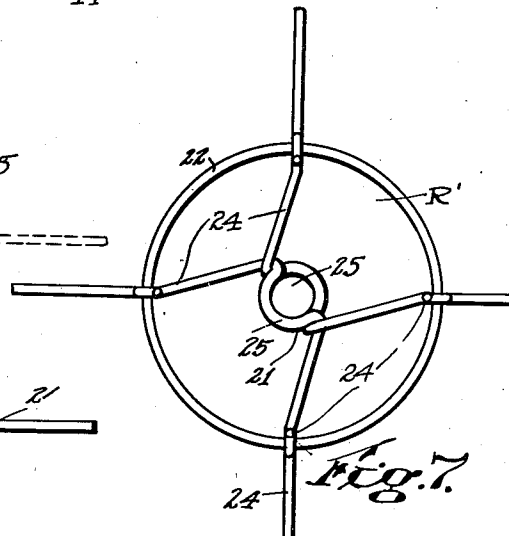


Fig. 7.

Inventor:
Frank N. Perkins
By Owen W. Kennedy
Attorney

UNITED STATES PATENT OFFICE

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COMBINED WIRE COILING BLOCK AND REEL

Frank N. Perkins, Gadsden, Ala.

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15 Claims. (Cl. 242—78)

The present invention relates to blocks and reels utilized in connection with the coiling of wire, and has for its object to provide an improved device that will serve the combined purposes of a drawing or take-up block, as well as a reel on which the wire can be coiled and firmly secured as a separate bundle, which can be readily handled thereafter.

Briefly stated, the invention resides in providing a rotatably driven block adapted to impart a draft to the wire, with the block being so constructed as to receive a reel around which the wire is coiled as the block rotates. The reel is so arranged that the wire will coil uniformly thereon, and after the coil has been completed, portions of the reel may be used to tightly bind the convolutions of the coil together, so that the coil and reel form a compact bundle which can be readily removed from the block. The above and other advantageous features of the invention will hereinafter more fully appear from the following description, considered in connection with the accompanying drawings, in which:

Fig. 1 is a view in side elevation of a combined block and reel embodying the invention, with some parts in section.

Fig. 2 is a plan view of the parts shown in Fig. 1.

Fig. 3 is a view in side elevation of a removable portion of the block.

Fig. 4 is a perspective view of the reel, separate from the block.

Fig. 5 is a sectional view of a completed bundle of wire carried by the reel.

Figs. 6 and 7 are views in elevation and in plan, illustrating a modified form of reel.

Referring to the drawings, the device is shown as comprising a rotatably mounted block B, providing a circular bottom flange 1, from which a series of arms 2 extend upwardly. The block arms 2 are separated by slots 3, as best shown in Fig. 2, and the outer faces 4 of the arms 2 are curved about a common center, so as to provide, in effect, a substantially continuous cylindrical drum, except for the provision of the slots 3 between the arms 2. The flange 1 provides radial grooves 1a communicating with the slots 3 between the arms 2.

The block further comprises a removable ring 5, shown separately in Fig. 3 as comprising a top flange 6 parallel to the bottom flange 1, with a series of spaced lugs 7 projecting inwardly for engagement with a series of overhanging lugs 8 provided by the several block arms 2. When the

ring 5 is placed in position on the arms 2 and turned to bring the lugs 7 and 8 into engagement, the ring 5 is locked in position on the block, as shown in Fig. 1. Obviously, turning of the ring 5 in the opposite direction, counter-clockwise as viewed in Fig. 2, will result in unlocking the ring to permit its removal from the block.

As best shown in Fig. 2, one block arm 2 is cut away at 9, to provide a surface 10 that is opposed to the surface of a lug 11 projecting from the inside of the ring 5. The ring 5 is cut away at 5a, adjacent to the lug 11, to permit insertion of the wire between hardened steel inserts 12 mounted in these opposed surfaces to provide a wire grip. One insert 12 is adjustable by means of a set screw 13, whereby the distance between the ends of the inserts 12 can be slightly varied, to suit the thickness of the wire to be gripped when the ring 5 is turned into its locked position on the block, with the lugs 7 and 8 in engagement.

As best shown in Figs. 4 and 5, a reel R is provided for mounting on the block B, with the reel consisting of similar end sections 14 spaced apart by cross members 15. The end sections 14 are shown as comprising reversely bent wires with offsets 14a interlocked to form a central eye 16, with arms 17 extending diagonally from the eye 16. Each arm 17 provides a bend or crimp 18 at a predetermined distance from the central eye 16 for receiving an eye 19 provided at each end of a cross member 15, with each eye 19 being of the proper size to closely receive an arm 17.

In assembling a reel R, the end sections 14 are held with their crimps 18 opposed to each other, after which the cross members 15 are placed in position by passing the then parallel arms through the eyes 19, until the eyes are seated in the crimps 18. The projecting arms 17 of one end section 14 are then bent into slightly convergent relation, as shown in Fig. 4, so as to lock the parts together, with the arms of the opposite end section 14 extending radially outward from the four corners of the reel, which is then ready for use in connection with the previously described block B.

When it is desired to form a coil or bundle of wire, the ring 5 is removed from the block B, and the reel R placed in position on the block, with the radially projecting arms 17 of the lower end section passing through the block slots 3, and with the eyes 16 receiving a pin 20 extending upwardly from the bottom flange 1, to

center the reel on the block. With the reel in position, its lower arms 17 extend radially in the grooves 1a of the bottom flange 1, with the cross members 15 located in the outer portions of the slots 3 so as to be substantially flush with the curved faces 4 of the block arms. The ring 5 may then be slipped down over the slightly converging arms of the upper end section, and locked in position by turning the lugs 7 and 8 into engagement, after placing the end of the wire to be coiled between the gripping inserts 12, as permitted by the cut away portion 5a.

The reel R is then moved upwardly on the block B until its lower arms 17 are just below the bottom of the ring 5, in which position the reel is held by bending the upper arms 17 outwardly, so that they frictionally bear on the inside of the ring 5, as indicated in dotted lines in Fig. 1. Rotation of the block, with the end of the wire to be coiled held in the gripping device, then causes the wire to be wound on the ring. As the coil forms, it slips off of the ring 5 onto the reel arms 17 extending through the block slots 3, and as the reel is only frictionally held, it is forced downward on the block as the wire accumulates in the coil. By the time that the desired amount of wire has been coiled, the reel has moved downwardly on the block to the extent that the lower arms 17 are resting in the flange grooves 1a, as indicated in dotted lines in Fig. 5, which shows a completed coil in section.

When a coil has been completed, the ring 5 is unlocked by turning it so as to disengage the locking lugs 7 and 8. After the ring has been removed, both sets of arms 17 are bent around the coil and then twisted together at their free ends, as indicated in Fig. 5. Since the twisting of the arms 17 together serves to draw the cross members 15 into close engagement with the inside of the coil, the completed coil then becomes a compact bundle, which can be lifted off of the block B by any suitable means and thereafter handled as a bundle, without any possibility of the convolutions of the coil becoming unwound. As soon as a reel and its coil have been removed from the block, a fresh reel can be placed in position for the formation of another coil and its conversion into a compact bundle by the elements of the reel itself.

Referring now to Figs. 6 and 7, a modified form of reel R' is shown as consisting of similar end sections 21 connected by a cylindrical drum 22 formed of thin sheet metal. The drum 22 provides openings 23 symmetrically arranged at each end to receive the arms 24 of each end section 21. Since the arms 24 of each end section 21 are formed in pairs, with an offset 25 between them, as shown in Fig. 7, when these offsets are interlinked and the arms 24 passed through the drum openings 23 in opposite directions, a complete reel is formed with a central eye at each end. After the parts of the reel R' have been completely assembled, the arms 24 can be attached to the drum 22 by spot welds 26, if desired, to impart rigidity to the completed reel. The arms 24 of the upper end section are then bent upwardly into substantial parallelism with the axis of the drum, as indicated in Fig. 6, and the reel is then ready for mounting on the block B.

When the reel R' is mounted on the block B, the cylindrical drum 22 entirely surrounds the arms 2 of the block, with its lower edge seated in a groove 27 provided in the flange 1, see Fig. 1. With the reel R' in position on the block, the upper edge of the drum 22 is located below the

ring 5, as indicated in dotted lines in Fig. 6, so that the upwardly bent reel arms 24 extending through the ring 5, will act as guides in passing convolutions of wire downward from the drawing ring to the drum. In other words, the upper arms 24 will always prevent the wire from catching on the upper edge of the drum 22, irrespective of the length of drum that may be employed for the reel R'.

The reel R' is utilized in substantially the same manner as the reel R, in the formation of a coil of wire, and after the coil is completed and the ring 5 removed, both sets of arms 24 are bent around the outside of the coil and twisted together to form the coil into a compact bundle. In the completed bundle, the drum 22 of the reel provides a firm support for the inside convolutions of the coil, so that the coil and its reel can be subjected to rough handling, without materially affecting the tightness of the convolutions of the coil.

Reels having different lengths of drums 22 may be employed for forming coils of the desired cross-section, since the block arms 2 have sufficient height to accommodate any desired length of drum. Obviously, coils of wire of different diameters may be formed by utilizing reel drums of larger or smaller diameter, in cooperation with blocks and coiling rings of corresponding diameter, with the lengths of the arms 24 being chosen to provide the necessary material for being bent around the coil and twisted together to form the coil into a compact bundle.

From the foregoing, it is apparent that by the present invention there is provided an improved wire coiling block and reel, adapted to serve the combined purposes of a drawing or take-up block, as well as a reel on which the wire can be coiled and firmly secured as a separate bundle, which can be readily removed from the block and thereafter handled as a unit.

I claim:

1. A device of the class described, comprising in combination, a rotatable block and a separate reel removably mounted on said block for receiving wire coiled by the rotation of said block, with portions of said reel being adapted to secure the coiled wire in a compact bundle.

2. A device of the class described, comprising in combination, a rotatable block and a separate reel removably mounted on said block for receiving wire coiled by the rotation of said block, with portions of said reel being bendable after formation of the coil, to secure the coil on the reel in a compact bundle.

3. A device of the class described, comprising in combination, a rotatable block and a separate reel removably mounted on said block for receiving wire coiled by the rotation of said block, and means provided by said reel for securing the coiled wire thereon in a compact bundle.

4. A device of the class described, comprising in combination, a rotatable block and a separate reel removably mounted on said block for receiving wire coiled by the rotation of said block, and means provided by said reel for securing the coiled wire thereon in a compact bundle preparatory to the removal of the reel and coil from the block.

5. A device of the class described, comprising in combination, a rotatable block providing spaced slots, a reel removably mounted on said block and providing a body and arms received in said block slots for supporting a coil of wire wound by the rotation of said block, with said reel arms

being bendable to secure the coiled wire in a compact bundle on said reel.

5 6. A device of the class described, comprising in combination, a rotatable block providing spaced slots, a reel removably mounted on said block and providing a body and arms received in said block slots for supporting a coil of wire wound by the rotation of said block, with said arms being bendable about the coiled wire to
10 secure the same in a compact bundle on the reel body.

7. A device of the class described, comprising in combination, a rotatable block providing spaced slots, a reel removably mounted on said block and providing a body and arms received in said block slots for supporting a coil of wire wound by the rotation of said block, with said reel arms being bendable to embrace the coiled wire and to secure the same in a compact bundle
15 on the reel body when twisted together.

8. A device of the class described, comprising in combination, a rotatable block providing spaced slots, a reel removably mounted on said block and providing a body and arms received in said block slots, and a ring removably mounted on said block and carrying means for imparting a draft to wire, with rotation of said block and ring causing the formation of a coil of wire on said reel.
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9. A device of the class described, comprising in combination, a rotatable block providing spaced slots, a reel removably mounted on said block and providing a body and arms received in said block slots, and a ring removably mounted on said block and carrying means for imparting a draft to wire, with rotation of said block and ring causing the formation of a coil of wire on said reel, and with said reel arms being bendable to embrace the coil of wire and to secure the same in a compact bundle on the reel body, when said
30 arms are twisted together.

10. A device of the class described, comprising in combination, a rotatable block providing

spaced slots, a reel removably mounted on said block and providing a body and arms received in said block slots, and a ring removably mounted on said block and carrying means for imparting a draft to wire, with rotation of said block and ring causing the formation of a coil of wire on said reel, which can be lifted from said block with said coil, upon removal of said block ring.
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11. A reel for use in connection with a coiling block, comprising a central body portion for receiving coils of wire and arms capable of being bent to secure the coiled wire in a compact bundle on said body.
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12. A reel for use in connection with a coiling block, comprising a body for receiving coiled wire upon rotation of the reel with said block, and a series of arms at each end of the reel body bendable towards each other for binding the coiled wire in a compact bundle on the reel.
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13. A reel for use in connection with a coiling block, comprising a cylindrical drum and end sections for said drum, each providing arms extending through openings in the drum and bendable around coiled wire on the drum, to form a compact bundle.
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14. A wire coiling block comprising a flange, arms extending upwardly from said flange, with slots therebetween for the reception of a reel, and a ring separable from said block arms and providing means for imparting a draft to wire, upon rotation of the ring with said block.
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15. A wire coiling block comprising a flange, arms extending upwardly from said flange, with slots therebetween for the reception of a reel, a ring removably mounted on the upper portions of said block arms, means for locking said ring in position on said block arms by a turning movement, and wire gripping elements carried by said ring and arm, respectively, for gripping a wire end when said ring is turned into its locked position.
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FRANK N. PERKINS.