July 29, 1952 G. W. BELL 2,605,060

WIRE MAGAZINE AND FEED MECHANISM

Filed Sept. 29, 1949 2 SHEETS—SHEET 1

Fig. 1

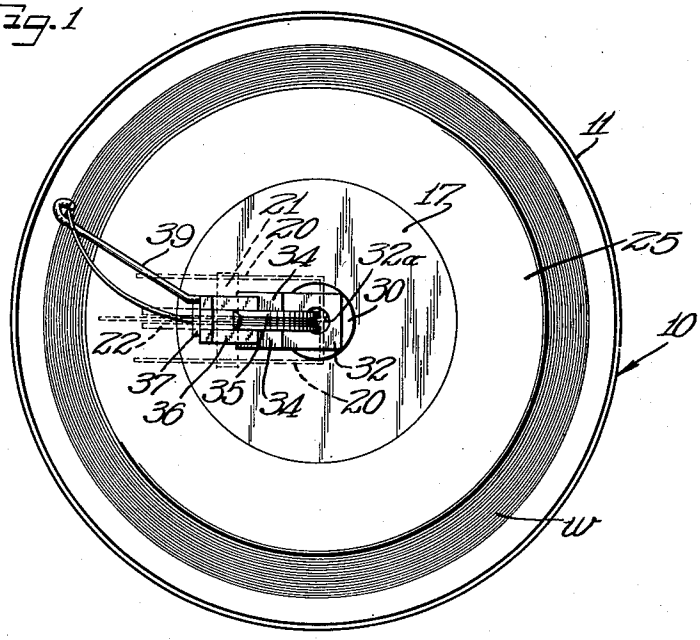
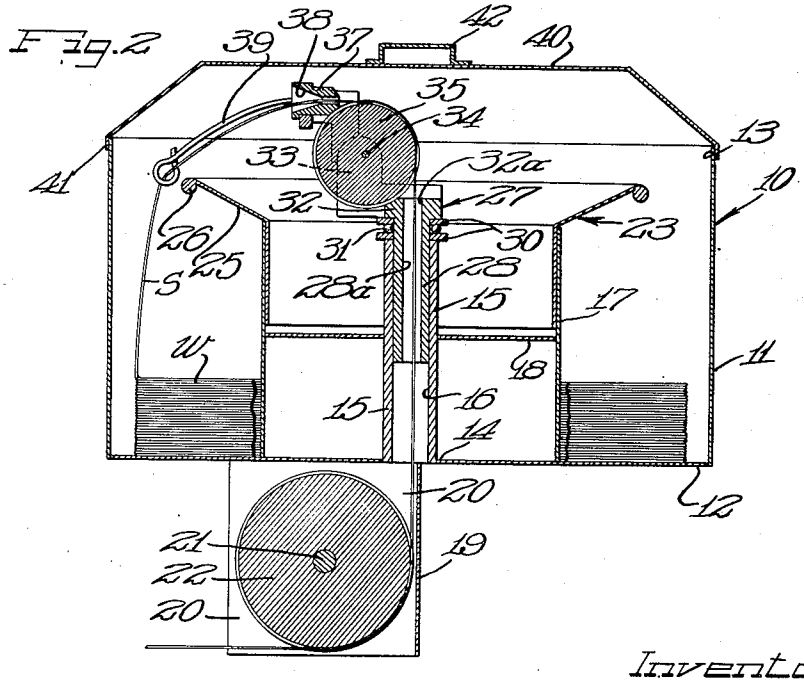



Fig. 2




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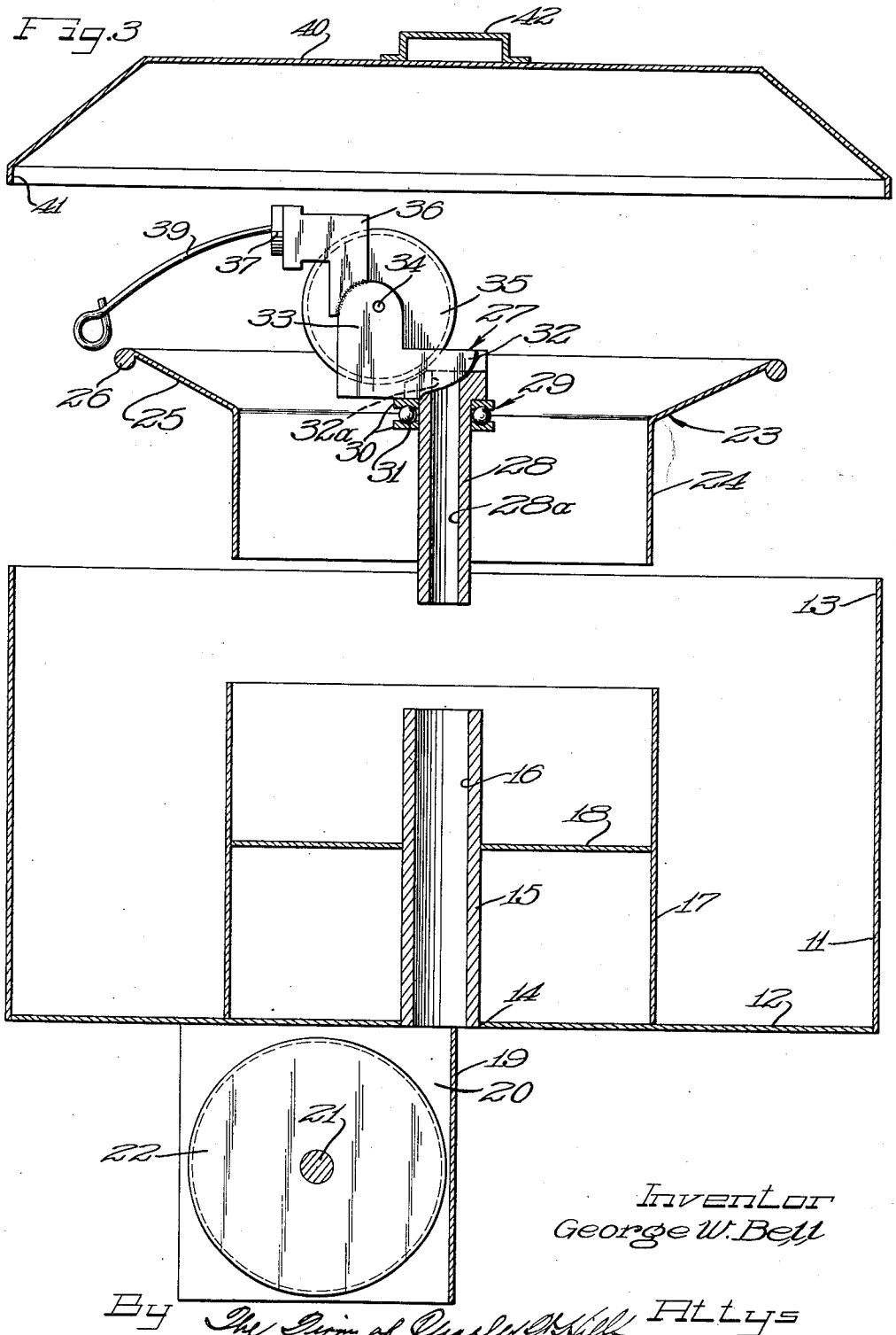
By The Firm of Charles A. Wilkinson Attys

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WIRE MAGAZINE AND FEED MECHANISM

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Fig. 3




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## WIRE MAGAZINE AND FEED MECHANISM

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5 Claims. (Cl. 242—128)

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The present invention relates to a wire magazine and feed mechanism and more particularly to apparatus for feeding baling wire directly from a conventional roll of wire to the bale tying and cutting elements of a conventional hay baler.

Various types of wire magazine and feed mechanisms for use with hay balers have been proposed. However, in each known instance of the prior art, it has been necessary to "spool," or rewind, as by means of a level winding process, the wire upon a special core or spool employed with the automatic tying and cutting mechanism of such balers. The wire is then withdrawn from the spool and automatically tied and cut to secure hay passing through the baler in a bale.

The present invention now provides an improved wire magazine and feed mechanism permitting the employment of an ordinary coil of wire for use with hay balers, the wire being withdrawn directly from the coil by means of a novel feeding mechanism to permit its use with automatic baling machinery.

In general, the apparatus of the present invention comprises an outer casing provided with a removable cover and carrying a central spool core about which an ordinary coil of wire may be placed. The spool core is provided with a cover carrying means extending outwardly over the coil of wire to prevent the wire from being displaced from its position about the spool, and means are provided for removing wire from the coil and passing it through a feeding mechanism for introduction into the automatic baling apparatus.

It is, therefore, an important object of the present invention to provide an improved wire magazine and feed mechanism permitting the employment of an ordinary coil of wire in automatic baling machinery.

Another important object of the present invention is to provide means for maintaining an ordinary coil of wire in position so that wire may be withdrawn from the coil for introduction into automatic baling machinery without the necessity of rewinding the wire.

It is a further important object of the present invention to provide a wire magazine and feed mechanism adapted for employment with automatic baling machinery and including a spool core about which the coil of wire may be placed, means for retaining the coil of wire about the spool core, and feeding means for introducing wire from the coil into the baling machinery.

Other and further important objects of the present invention will be apparent from the disclosures in the specification and the accompanying drawings.

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This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a plan elevational view of a wire magazine and feed mechanism of the present invention with the casing cover removed;

Figure 2 is a vertical sectional view of the magazine and feed mechanism of Figure 1 with the cover in closed position; and

Figure 3 is an exploded, vertical sectional view, with parts shown in elevation, illustrating the assembly of the apparatus of the present invention.

As shown on the drawings:

In Figure 1, reference numeral 10 refers generally to wire magazine and feed mechanism of the present invention, the apparatus being particularly adapted for employment with automatic baling machinery. It is understood that the apparatus is adapted to be mounted in a convenient position upon an automatic baling machine to provide a wire magazine and feed mechanism for supplying wire from the magazine to the tying elements of the baler.

The article 10 includes a generally cylindrical outer casing 11 having a lower closure wall 12 and an open upper end 13. The lower closure wall 12 is centrally apertured, as set at 14, to receive an upstanding, cylindrical post 15 having an axial bore 16. A generally cylindrical, upstanding spool core 17 is secured to the wall 12 by suitable means, as by welding, in a position concentric with and surrounding the post 15. A bracing web 18, extending radially of the core 17, is secured to the post 15 intermediate the length of the post and serves to retain the post in upright position.

The lower closure wall 12 of the casing 11 also carries a depending generally U-shaped shield 19 having spaced parallel outwardly extending legs 20 secured at their upper edges to the wall 12 and carrying an axle 21 extending therebetween. A peripherally grooved guiding sheave 22 is mounted on the axle 21 for rotational movement.

A core cover 23 is provided to be inserted within the spool core 17, the cover including a lower generally cylindrical portion 24, having an outside diameter substantially equivalent to the inside diameter of the spool core and nestable therein, and an upper, generally frusto conical, upwardly and outwardly sloping portion 25

formed integrally with the cylindrical portion 24 and terminating in an outer peripheral rib 26.

A guide block 27 is provided for guiding wire through the apparatus, the block including a lower, generally cylindrical spindle 28, having an outside diameter corresponding to the inside diameter 16 of the post 15 and an axial bore 28a, the spindle 28 being telescopically positioned within the axial bore 16 of the post 15 upon assembly of the apparatus. A bearing collar 29 encircles the spindle 28, the collar including upper and lower bearing races 30 and a plurality of ball bearings 31 confined therebetween.

The guide block 27 includes an upper block portion 32 formed integrally with and overlying the spindle 28 and having an aperture 32a therethrough concentric with the bore 28a of the spindle 28. The block 32 is provided with a pair of opposed upstanding arms 33 supporting an axle 34 extending therebetween to receive a guiding sheave 35.

A pair of additional offset supporting arms 36 support an orifice block 37 positioned adjacent the sheave 35 and having a central tapered guiding orifice 38 (Figure 2) formed therein. A wire guiding arm 39 extends outwardly from the orifice block 37 to overlie the terminal rib 28 of the core cover 23.

A casing cover 40 is provided with an outer, downturned, terminal peripheral flange 41 adapted to fit over the cylindrical casing 11 as shown in Figure 2. The casing cover 40 is provided with a central handle 42 for placing and removing the cover upon the casing 11.

The operation of the apparatus hereinbefore described is extremely simple and serves to efficiently feed wire to the wire cutting and tying mechanism of the hay baler with which the apparatus is employed. The method of assembly of the apparatus is shown in Figure 3 and includes the following steps. A roll or coil of wire W is placed about the spool core 17, the wire being supported by the lower closure wall 12 of the casing. The roll of wire need have no special configuration, nor is a special spool necessary. Conventional wire coils may be used so long as the central aperture of the wire coil has a diameter greater than that of the spool core 17.

After positioning the coil of wire as shown in Figure 2, the core cover 23 is placed in position upon the spool core 17 with the dependent cylindrical portion 24 of the cover fitting within the core. Next, the spindle 28 is positioned within the bore 16 of the post 15 with the lower bearing race 30 serving to support the spindle for rotation within the post. A strand of wire S from the coil W is threaded through the looped end portion of the wire guide 39 and through the guiding orifice 38 about the periphery of the sheave 35 and through the spindle bore 28a and the bore 16 of the post 15 about the periphery of the sheave 22. Following the assembly of the apparatus and the threading of the strand S as above described, the cover 40 is placed upon the casing 11 and the apparatus is ready for use. As the strand S is pulled from the coil W, the entire guide block assembly 27 is free to rotate upon the bearings 31 to follow the course of the strand S. Inasmuch as the guiding sheave 35 is rotatable with the block 27, it will be seen that the strand S is guided to the second guiding sheave 22 about the entire periphery of the coil W.

Thus, the apparatus of the present invention makes possible the employment of a conventional coil W of wire with a single strand S of the wire being removed from the coil and guided by a pair of spaced guiding sheaves 35 and 22 to the cutting and baling portions of the baling machine. The expensive and time consuming step of rewinding the coil W is eliminated and relatively large coils W may be employed, with the core cover 23 obviating the possibility of the coil of wire becoming displaced during feeding of the wire.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. Feeding mechanism for a hay baler comprising a cylindrical casing, an upstanding spool core mounted centrally of said casing and adapted to receive a coil of wire thereabout, a removable core cover for said core having portions extending radially outwardly therefrom to overlie said spool of wire to prevent displacement thereof, an upstanding post extending axially of said spool core and having an axial bore therethrough, an axially bored guide block rotatably received by said post and having spaced upstanding supporting arms, a guiding sheave journaled between said arms, a guide block carried by said arms and having a tapered guiding bore aligned with the periphery of said guiding sheave, and means extending beyond said arms and overlying said core cover for guiding a strand of wire from said coil through said guide block for said guiding sheave and axially of said guide block and said post.

2. Wire magazine and feeding mechanism for a hay baler comprising a closed outer casing, a spool core extending upwardly within said casing, a guide block rotatably supported by said casing and having an axial aperture therethrough, a guiding sheave rotatably carried by said guide block, a guiding orifice block carried by said guide block and having a tapered aperture therethrough for receiving a strand of wire from said coil and guiding the same about said sheave, and a second sheave positioned beneath said core and having its periphery aligned with the guide block aperture for receiving the strand as it is fed axially of said guide block.

3. Wire magazine and feeding mechanism for a hay baler comprising a generally cylindrical casing, a removable cover for said casing, a cylindrical spool core extending axially of said casing, a removable core cover telescopically engaging said spool core and having an outturned flange for overlying the spool of wire disposed about said core, an upstanding post extending axially of said spool core and having an axial bore, a guiding sheave rotatably disposed on said post for rotation about its own axis and about the axis of said post to guide a strand of wire axially of said post, and guiding means carried by said post for guiding said strand of wire to said sheave and including a guide block having a tapered interior bore aligned with the periphery of said sheave for receiving said strand therethrough.

4. A wire magazine for a hay baler comprising concentric inner and outer cylindrical casings adapted to receive an annular coil of wire interposed therebetween, an inner cover positioned within said outer casing to telescopically engage said inner casing and having a radially outwardly extending flange for overlying said coil of wire to prevent displacement of said coil from its position between said casings, means providing an

axial passage communicating with the interior of said casings, and rotatable means overlying said passage and said inner cover for guiding wire from said coil through said passage.

5. A wire feeding mechanism for a hay baler comprising an outer casing, an upstanding central core concentric with said casing for receiving a coil of wire thereabout, an upstanding post extending axially of said core and having an axial bore, a first guiding sheave carried by said post and extending upwardly therebeyond, bearing means interposed between said first sheave and said post to journal said first sheave for rotation about the axis of said post bore, a second sheave carried by said casing and underlying said post, and means extending outwardly from said post and rotatable with said first sheave to overlie said coil for guiding a strand of wire from said coil about said first sheave, axially of said post, and about said second sheave.

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