S. A. McCULLOUGH.

WIRE REEL.

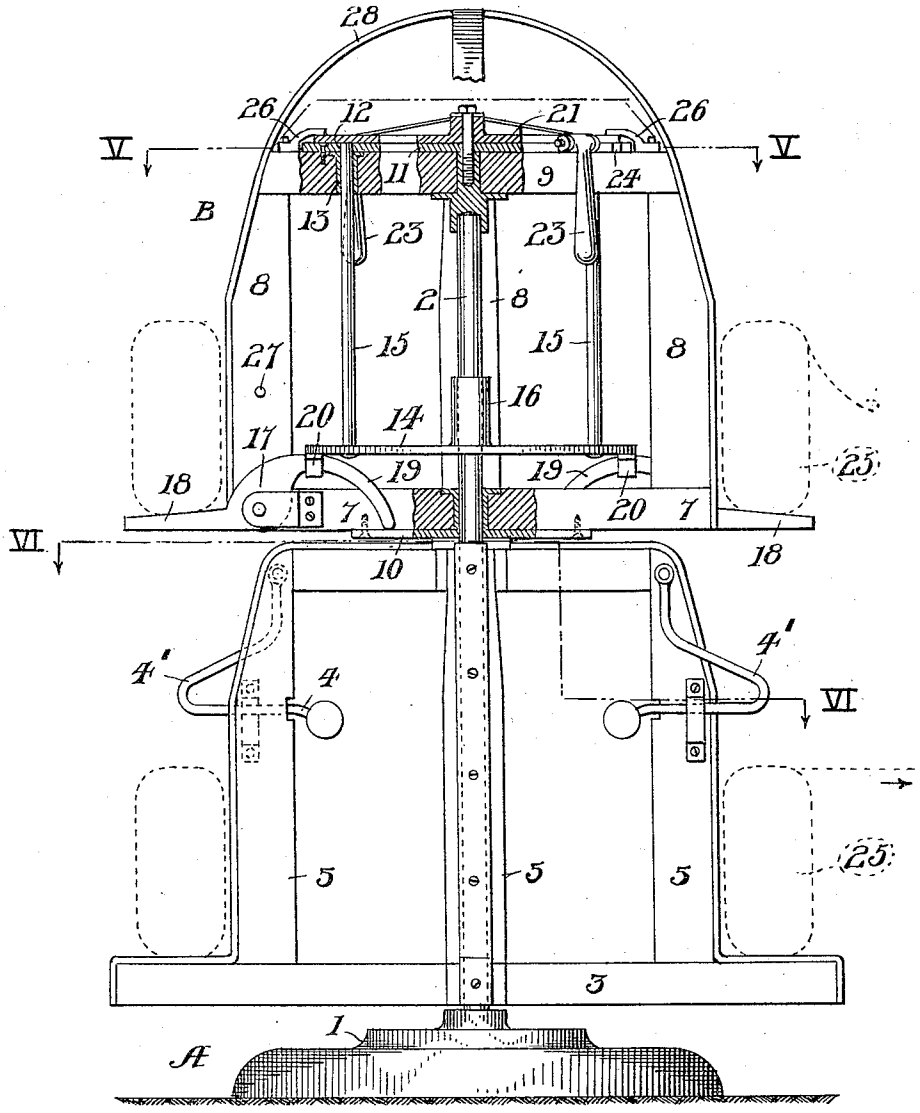
APPLICATION FILED MAR. 23, 1910.

1,007,039.

Patented Oct. 24, 1911.

3 SHEETS—SHEET 1.

FIG. 1



WITNESSES

J. P. Appleman,

H. N. Greer.

INVENTOR

Samuel A. McCullough,

By H. W. Stevenson,

Attorney.

S. A. McCULLOUGH.

WIRE REEL.

APPLICATION FILED MAR. 23, 1910.

1,007,039.

Patented Oct. 24, 1911.

3 SHEETS—SHEET 2.

FIG. 2

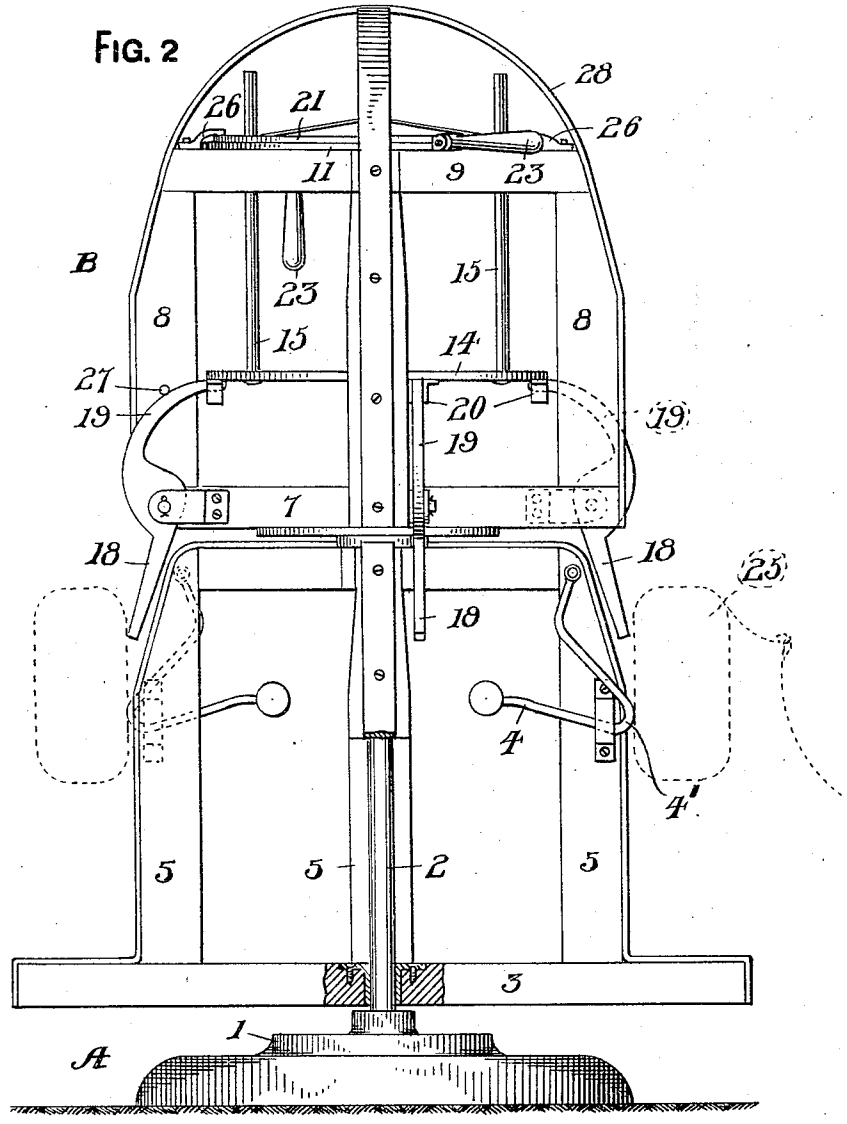


FIG. 3

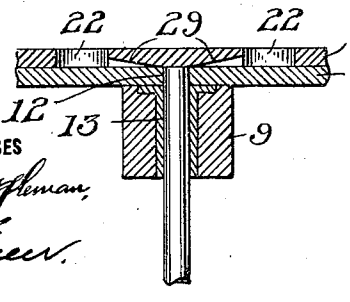
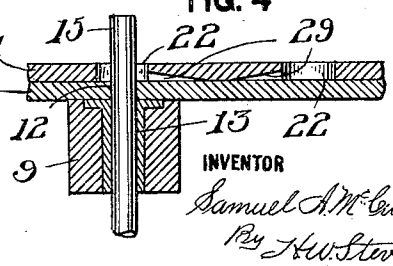


FIG. 4



WITNESSES

J. P. Coffeman,

C. H. V. Green.

INVENTOR

Samuel A. McCullough

By H. W. Stevenson,

Attorney.

S. A. McCULLOUGH.

WIRE REEL.

APPLICATION FILED MAR. 23, 1910.

1,007,039.

Patented Oct. 24, 1911.

3 SHEETS—SHEET 3.

FIG. 5

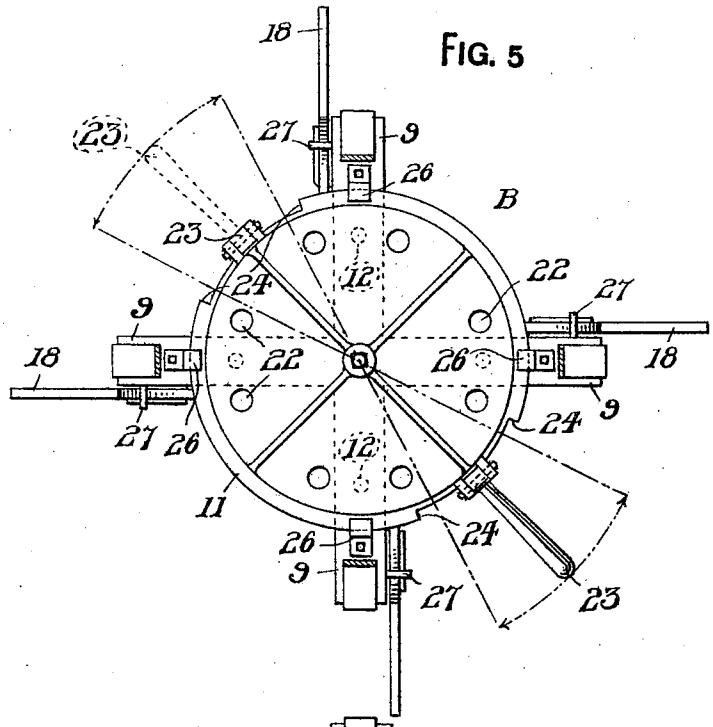
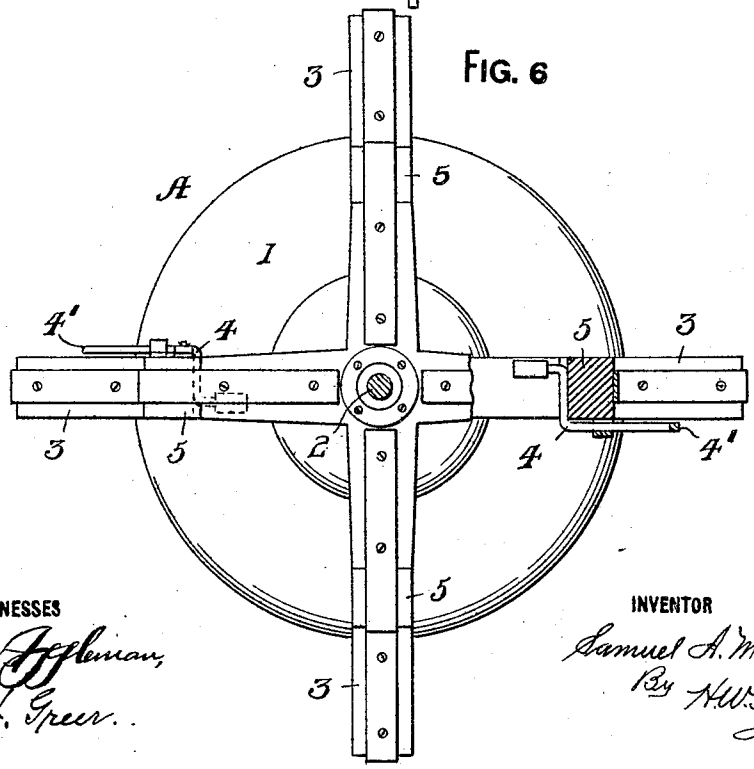


FIG. 6



WITNESSES

J. B. Hoffman,

O. K. Greer.

INVENTOR

Samuel A. McCullough,

By H. W. Stevenson,

Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL A. McCULLOUGH, OF FALLSTON, PENNSYLVANIA, ASSIGNOR OF ONE-FOURTH TO JOHN READ MINER, OF AMBRIDGE, PENNSYLVANIA, AND ONE-FOURTH TO ALBERT H. MILLER, OF FALLSTON, PENNSYLVANIA.

WIRE-REEL.

1,007,039. Specification of Letters Patent. **Patented Oct. 24, 1911.**

Application filed March 23, 1910. Serial No. 551,176.

To all whom it may concern:

Be it known that I, SAMUEL A. McCULLOUGH, a citizen of the United States, residing at Fallston, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Wire-Reels, of which the following is a specification.

My invention pertains to certain new and useful improvements in wire reels, applicable in the process of manufacturing any, and all, diversified grades of wire.

The fundamental object of my invention is the provision of an improved form of wire reel that will be of great advantage and efficiency in the drawing process, combining as it does simplicity in operation, and economy in floor space; the latter feature being one that will be appreciated by the manufacturer, and those skilled in the art to which this invention belongs.

My invention involves the combination of two independently rotatable reel members, placed one above the other, with tripping mechanism thereon, whereby the bundle of coiled wire can be quickly dropped from the upper to the lower reel without human handling, thus facilitating and simplifying the manufacture of wire. During the forming and annealing processes, incidental to the manufacture of practically all grades of wire, the present method, now in common use, involves the use of a multiplicity of independent reels positioned in proper alinement and relationship with the dies or annealing bath, thus involving a greater amount of floor space than will be required with the use of my improved reel.

With the above objects in view, as well as others that will appear as the description proceeds, my invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter, and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of my invention, Figure 1 is an elevation showing the assembled relationship of the two reel members with bundles of wire, designated by dotted lines, in position thereon. Fig. 2 is a similar view illustrating the means employed for releasing and dropping the bundle of wire from the upper to the lower reel, said bundle being shown by dotted lines; Fig. 3 is an enlarged sectional view taken vertically through the reel B in its upper portion showing means employed to facilitate movement of the regulating disk. Fig. 4 is a similar view taken at the same point showing the disk moved over to permit passage therethrough of vertically disposed guide members; Fig. 5 is a top plan view partly in section, taken on the line V—V of Fig. 1, and Fig. 6 is a cross sectional view taken on line VI—VI of Fig. 1.

Similar reference numerals and letters are employed to designate like parts throughout the different views shown in the drawings, and referring to said drawings "A" designates the lower reel, as a whole, involving the supporting base portion 1; stationary vertical shaft 2, secured in said base; and frame work 3. This said reel A is of ordinary construction, and no novelty is involved or claimed for this particular feature of my invention, with the exception of the addition of the counter-balanced weight members 4, which are operatively mounted in the uprights 5, in any adequate manner, adjacent the upper section of said reel; the particular requirements and adaptability of which will be set forth in detail further on. The said vertical shaft extends upward a pre-determined distance above the top of the reel A, and supports the upper reel; designated generally as "B." This latter mentioned member is capable of independent rotation, and constructively involves suitable frame work, similar to the lower reel, consisting of the radially disposed lower pieces 7, vertical side pieces 8, and radial top pieces 9, in alinement with said lower pieces 7; altogether forming a cage. A stiffening plate 10 is preferably secured to the lower side of the said reel B, which is provided with a central opening to permit passage therethrough of the shaft 2. A similar stiffening plate 11 is secured on the top of said reel B, being provided with a plurality of apertures 12, indicated by dotted lines, Fig. 5, positioned adjacent the circumferential edge of said plate, which said apertures register with similar sized passage-ways 13 formed in the upper radial pieces 9.

Operatively positioned in the cage B, and seated around the shaft 2, is a liftable plate member 14 to which is secured a plurality

preferably four in number, of vertically disposed guide rods 15, the upper portions of which enter, and normally seat in the apertures 13, being free to slide through said apertures, their extreme upper ends also entering the apertures 12 formed in the plate 11. A collar 16 secured to the plate 14, and seated around the shaft 2, serves to keep said plate in perfect horizontal position during its up and down movement. Pivoted to the outer lower edge of the frame B are a plurality of tilting lever members 17, each one being provided with a bundle supporting outer portion 18 projecting beyond the said frame, and a curved inner portion 19, which passes through a retaining and lifting stirrup 20, secured to the under side of the plate 14, and contacts with the plate 10, or other suitable limiting means.

Operatively secured on the top of the cage B, and resting on the plate 11, is a controlling disk member 21, adapted for either right or left hand movement, the circumferential edge of which is provided with a plurality of apertures 22, adapted to be brought into registering position with the apertures 12 formed in said plate 11. This said disk carries one or more handle members 23, preferably hinged as shown, so as to be dropped out of the way when not being used. The full limit of movement of the said disk either to the right or left, is regulated by the shoulders 24, formed by notching out a portion of the outer edge of the plate 11; the said handles being adapted to engage against said shoulders when the said plate is moved to unlocking position. This exact described constructive feature, for limiting the movement of the said disk 21, is not absolutely essential, as various other means can be substituted that may prove to be more acceptable than the one just described. The bundle of wire, designated by 25, when placed over the reel B, and seated on the fingers 18, will, by reason of its weight, bear down on said members, and in so doing raise the curved inner portion 19 into engagement with the under side of the plate 14. This consequent upward thrust will have a tendency to raise the plate 14, but, owing to the fact that the extreme upper ends of the guide rods 15 are in engagement with disk 21, which latter member is held in position by keepers 26, and likewise by its central securing means, no upward movement of said plate and rods is possible, thus the members 17 are kept in holding relationship with the bundle of wire until such time as it is desired to drop said bundle onto the lower reel A. This movement, or transference of the bundle from the upper to the lower reel, is accomplished in the following manner: Supposing the bundle of wire to be resting on the members 18, and held in suspended position as above described, when the bundle reposing on the lower reel A has been unwound, during any of the different steps in the process of forming materials of this class, and it is desired to transfer the bundle previously placed on the upper reel B to said lower reel A, the operator, by means of the handle member 23, or substituted grasping means, slides the disk 21, either to the right or left, until said handle engages against the stop shoulder 24, at which time the apertures 22 will register over the exposed ends of rods 15. The instant this movement is brought into play, and the locking means is removed, the members 17 will tilt, owing to the weight of the bundle resting thereon, and assume a position shown in Fig. 2, the curved inner portion 19 sliding through the stirrups 20, and in so doing raising the plate 14, the rods 15 passing upward through the registering apertures 12, 13, and 22, respectively. The bundle is then free to drop from the fingers 18, and falls by gravity around the lower reel A, in so doing strikes against and presses inwardly out of the way, the counter-balanced members 4, and finds lodgment on a suitable ledge formed on said reel.

The maximum upward movement permitted the plate 14, and likewise tilting position of the members 17, is regulated by the stop pins 27, suitably positioned in the uprights 8, against which the curved inner portions 19 engage at the end of the said movement, or any other suitable means for accomplishing this result may be substituted.

The particular office of the counter-balanced members 4, which have the outwardly extending portions 4′, is to provide a means whereby the loose strands of the bundle seated on the reel A will be confined below the said members 4, and prevented from working upward over said lower reel during the process of unwinding.

Reference may also be had to the binding and strengthening straps 28 which, in a wood constructed cage, pass around the uprights and radial members, and on the upper reel B form an arch over the working parts, leaving sufficient clearance for the upward movement of the rods 15.

The two reels A and B are rotatable independent of each other so that it is possible for two bundles of wire to be drawn and unwound simultaneously from my structure, or in case the method used only necessitates drawing from the lower reel, a second bundle can be placed on the upper reel, ready for instant connection with the last strand of the lower bundle, as shown in Fig. 2, and said upper bundle then dropped to the lower reel, without stoppage or delay of the drawing process.

In Figs. 3 and 4 I have illustrated one means of reducing the frictional contact be-

tween the plate 11 and disk 21 in order to facilitate movement of said latter member in the performance of its intended function. This consists in providing a tapered undercut surface 29 in the disk 21, between the openings 22, and adjacent the contacting point between said plate and the upper ends of the rod members 15. This constructive feature, or any adequate substituted means, will insure the easy movement of the disk 21 to perform its office of locking and unlocking the members 17 in bundle retaining and tilting positions.

The device heretofore described and shown in the drawings, together with the advantages of the construction, and of the method of operation, is intended to be used in conjunction with my patented wire reel and bundle remover, dated December 21, 1909, Serial Number 943,701, the advantage of which will be readily apparent to those skilled in the art to which this invention pertains. I desire however to have it understood that the device shown is merely illustrative, and that such changes as are necessary can be made in the detail form of construction without departing from the original spirit and intention, provided they are within the scope of the claims appended hereto.

What I claim as new is:

1. In an apparatus of the class described, a plurality of independently rotatable reel members placed one above the other; bundle supporting elements on the upper reel adapted to tilt and deposit the bundle on the lower reel; a releasable locking mechanism for controlling the tilting action of said elements involving a raising and lowering member carrying vertically disposed rods, and a movable apertured member against which the upper ends of the said rods contact when the bundle supporting elements are in holding position, and through which the said rods are adapted to pass when the said elements are to be released to deposit the bundle.

2. In an apparatus of the class described, a plurality of reel members placed one above the other and adapted for independent rotation; bundle supporting elements on the upper reel adapted to tilt and deposit the bundle on the lower reel; a releasable locking mechanism on the upper reel involving a raising and lowering member, vertically disposed guide rods, and a movable apertured member for engagement against the upper ends of the said guide rods, for controlling the tilting action of said bundle supporting elements; and bundle retaining members on the lower reel adapted to be pushed out of the way when the bundle is being placed on said lower reel, and to automatically return to normal position when the bundle is seated.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL A. McCULLOUGH.

Witnesses:
CHAS. H. MURPHY,
WM. W. WILSON.