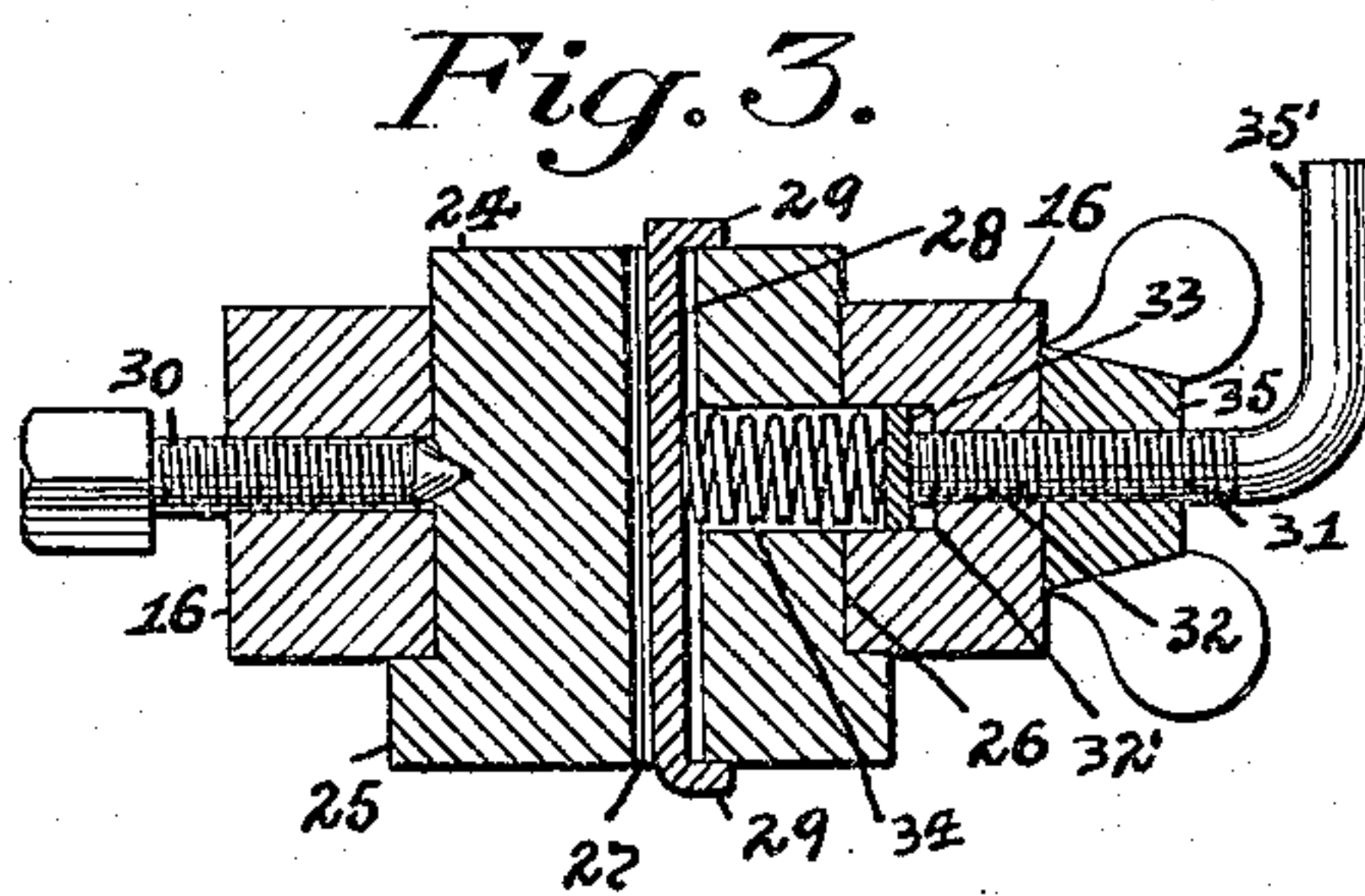
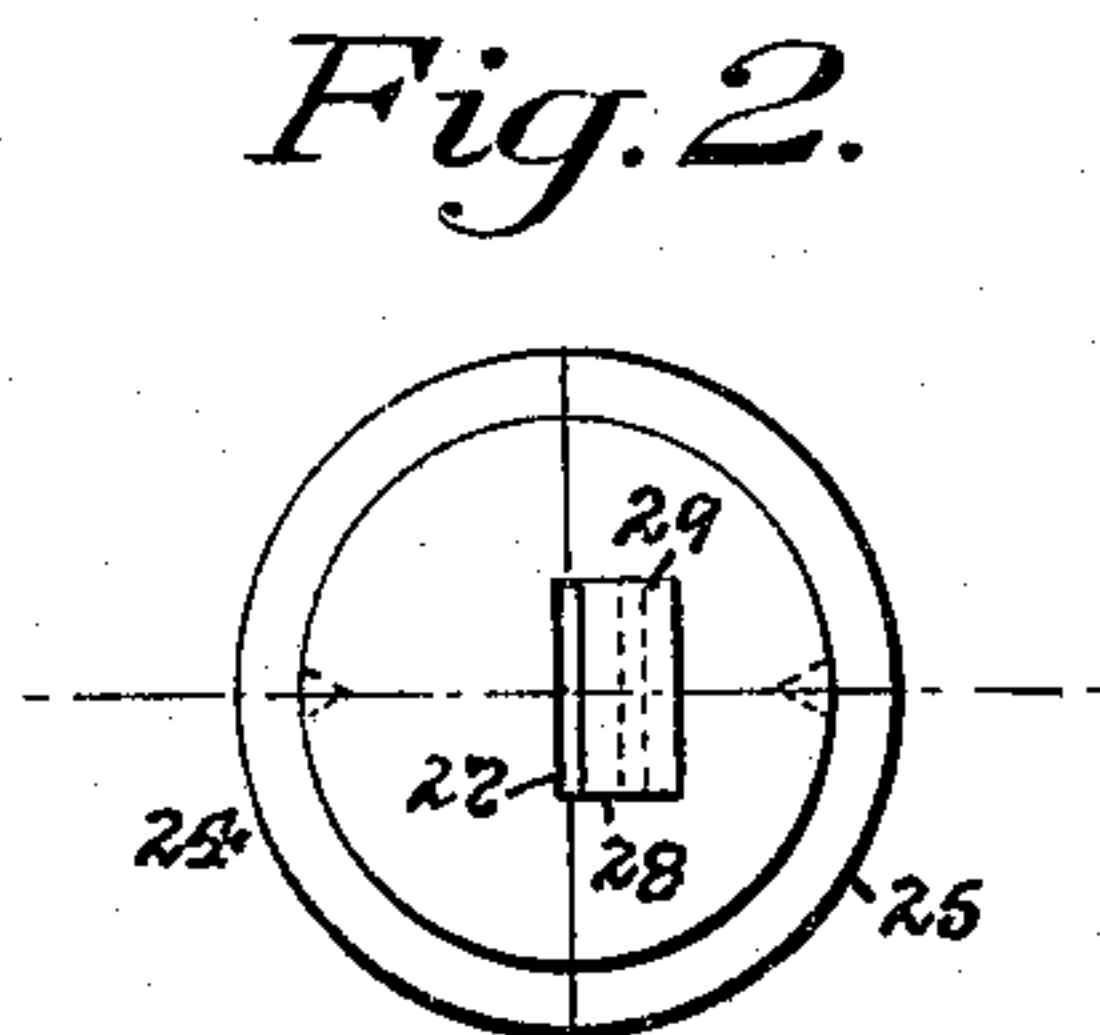
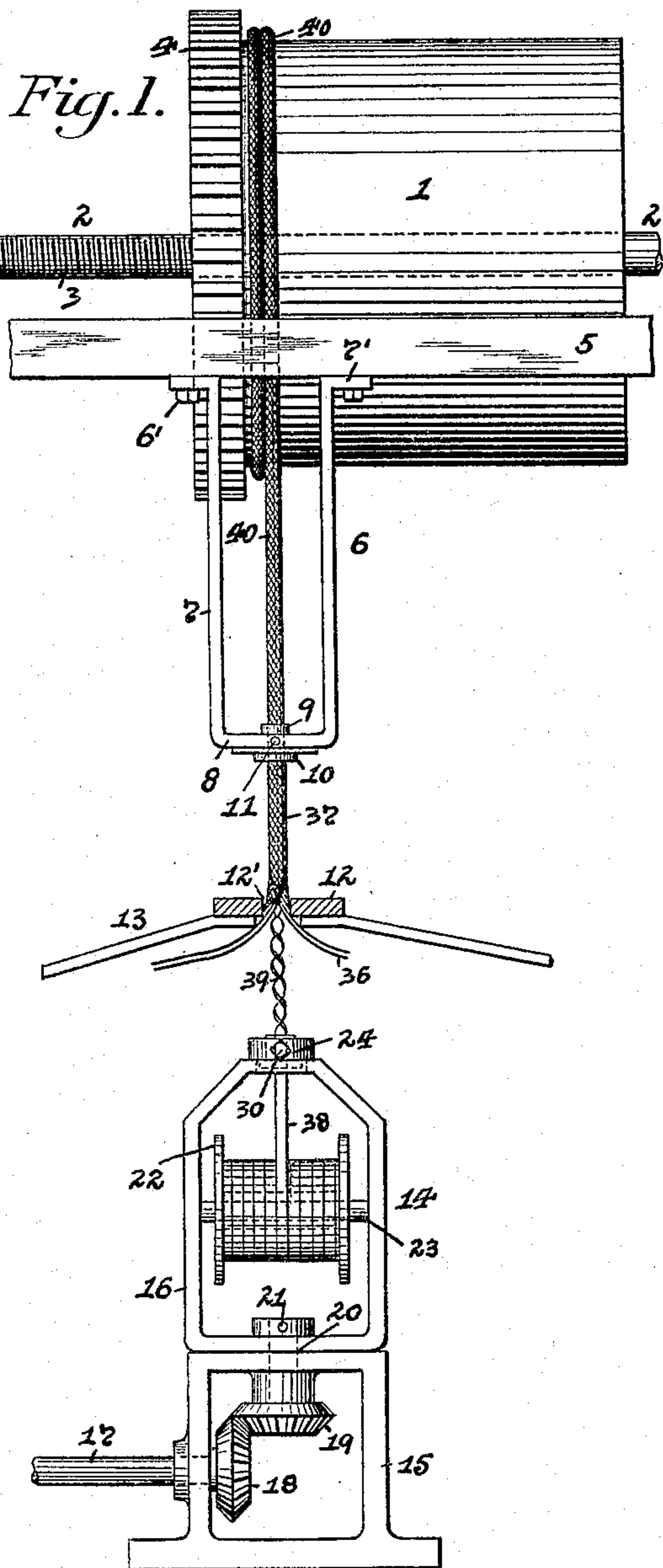


G. R. KRESS.  
MACHINE FOR MAKING CABLES OR CONDUCTORS.  
APPLICATION FILED DEC. 1, 1908.

936,728.

Patented Oct. 12, 1909.





# UNITED STATES PATENT OFFICE.

GEORGE R. KRESS, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR MAKING CABLES OR CONDUCTORS.

936,728.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed December 1, 1908. Serial No. 465,538.

*To all whom it may concern:*

Be it known that I, GEORGE R. KRESS, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Making Cables or Conductors; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a machine for making cables or conductors, and has special reference to the manufacture of such cables or conductors for lightning and other purposes.

The object of my invention is to provide a cheap, simple and efficient machine for the manufacture of cables or conductors formed of a stranded or plaited tubular outer member and a spirally shaped or twisted inner member, as well as such a machine which can be operated easily and rapidly, will contain few parts, and will not be liable to get out of order.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved machine for making cables or conductors, I will describe the same more fully, referring to the accompanying drawing, in which—

Figure 1 is a side elevation, partly in section of my improved machine for making cables or conductors. Fig. 2 is a top plan view of the twisting die. Fig. 3 is a vertical section of the same and its connections. Fig. 4 is a top plan view of the sizing and holding die. Fig. 5 is a side elevation of the same.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing, my invention is shown in connection with the ordinary portion of a machine for making rope, etc., such as is shown in my United States Letters Patent No. 438,627 granted on October 21, 1890, in which the drum 1 is mounted upon a bar 2 having a threaded portion 3 thereon engaging with a corresponding threaded opening (not shown) in said drum, so that said drum can be moved along said

bar through suitable mechanism (not shown) connected to the gear wheel 4 on said drum.

Extending down from the frame 5 on the side of the drum 1 is the U-shaped stirrup or hanger 6 which is secured to said frame by bolts 6' passing through flanges 7' on the sides 7 of said hanger and entering said frame. Fitting within the bottom 8 of the hanger 6 is the circular sizing or holding die 9 which is made in two parts or sections having a flange 10 thereon and are adapted to form the central opening 9' through the same when in position together. The sectional die 9 is held together and within the hanger bottom 8 by means of set-screws 11 passing through said bottom and bearing against said sections. Below the die 9 is the circular gathering ring 12 which is supported on the frame 13, and is provided with the circular opening 12' centrally through the same.

Below the ring 12 is the twisting device 14, which consists of a supporting base or frame 15 having a revoluble frame 16 mounted on the top of the same and operated from any suitable source of power through a shaft 17. This shaft 17 has a bevel pinion 18 thereon and within the base 15 for meshing with a like pinion 19 in said base and mounted on a shaft 20, which is journaled in said base and is connected to the frame 16 by a pin 21. Within the frame 16 is the drum or spool 22 which is mounted on a shaft 23 journaled in said frame, and above said spool and mounted on said frame is the circular twisting die 24. This die 24 is located below the gathering ring 12 and is formed in two parts or sections having a flange 25 thereon which fits within an opening 26 in the frame 16, and such sections are so formed that when together a slotted opening 27 is formed centrally between and through the same for the reception of a tension strip 28 extending throughout the length of said sections and opening. The strip 28 is movable within the opening 27 and is provided with a flange 29 at each end of the same for fitting over the ends of said die to hold the same in place and allow for its movement. The die 24 is secured in the frame 16 by means of a set-screw 30 engaging with the frame 16 and bearing against one of the sections of said die and by a screw-bar 31 engaging with a threaded hole 32 in said frame, which bar 31 is adapted to



have its inner end enter an enlarged portion 32' of said hole in said frame and in one of the said die sections. A follower or washer 33 is placed within the enlarged hole 32' and against the inner end of the bar 31, and a spiral spring 34 is placed within said enlarged hole for bearing against said washer and strip 28 to give the proper tension on the strip to be twisted in passing through the die 24. A jam nut 35 engages with the threaded portion on the bar 31 and bears against the frame 16, and the outer end of said bar is provided with an arm 35' thereon for moving said bar to relieve or compress the spring 34, when desired.

The use and operation of my improved machine for making cables or conductors is as follows: This machine is illustrated in connection with the making or forming of a cable or conductor such as is shown in my application for United States Letters Patent filed on May 29th, 1908, as Serial No. 435,622 in which is shown a hollow plaited outer member and a twisted strip or inner member, and the wire strands 36 for forming the outer member 37 are fed from any suitable apparatus or machine for plaiting to the ring 12 of such machine where they are plaited to form such member. The flat metal ribbon or strip 38 for forming the twisted inner member 39 is wound around the spool 22 in the revoluble frame 16 and while the strands 36 are thus being plaited in the ring 12 to form the outer member 37, the said frame 16 is being revolved on the frame 15 by the shafts 17 and 20 and pinions 18 and 19 thereon meshing with each other, so that the flat ribbon or strip 38 is passed through the opening 27 in the die 24 and against the tension strip 28 and opposite die section and thence into the plaited member 37 being formed in said ring. As the strip 38 is thus fed from the spool 22 through the die 24 and ring 12 and into the plaited member 37, it will be twisted between said die and ring and die 9 to form the inner member 39, so that when the said outer and inner members are passed from said ring into the die 9 the said die will hold or bind upon the said members and compact the outer member around the inner member to form the cable or conductor 40 of the proper size as well as holding the inner member 39 from any further twisting or moving in the said outer member. After the cable or conductor 40 is thus formed, it passes up onto the drum 1 and it is wound upon said drum as it is thus fed to the same and as said drum is fed along the screw-bar 2 in the usual manner. In case of the joining of two ribbons or strips together by any suitable material or in the overlapping of the ends of said strip and thereby causing an enlargement on the strip, the said strip will easily pass through the twisting die 24

and be twisted through the tension strip 28 yielding or being allowed to be pressed back in the opening 27 through the spring 34 being compressed between said strip 28 and screw-bar 31, so that such strip 28 will allow for different thicknesses of strips to be twisted in passing through the die 24.

It will thus be seen that my improved machine for forming cables or conductors will enable the formation of different size cables or conductors by the use of different size dies and ring, as such dies and ring are interchangeable and easily and quickly removed and inserted from and to their positions, when desired.

The machine will also enable the formation of different forms and shapes of outer and inner members for the cables or conductors and one or more wires for forming the plaited strands of the outer member can be used in the making of such cables or conductors.

Practical experience with the machine has demonstrated its great utility for the purposes intended and its ease and convenience of operation, as well as its ability for rapid and finely finished work.

It will be evident that the machine can be used for a variety of purposes other than the forming of lightning cables or conductors, such as electric cables or conductors, rope and other like articles and from various materials and shapes; while various modifications and changes in the design, construction and operation of the various parts of my improved machine for forming cables or conductors may be resorted to, without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for forming cables or conductors composed of an outer member formed of strands and a twisted inner member, the combination of a gathering means for the strands of the outer member, a holding die on one side of said means for said members, and revoluble means on the other side of said means for carrying the bar or strip to be twisted and adapted to twist said strip between the same and said die.

2. In a machine for forming cables or conductors composed of an outer member formed of strands and a twisted inner member, the combination of a gathering means for the strands of the outer member, a holding die on one side of said means for said members, and a revoluble die on the other side of said means for carrying the bar or strip to be twisted and adapted to twist said strip between the same and said holding die.

3. In a machine for forming cables or conductors composed of an outer member formed of strands and a twisted inner mem-



ber, the combination of a gathering means for the strands of the outer member, a holding die on one side of said means for said members, a revoluble frame on the other side of said means for carrying the bar or strip to be twisted, and a die on said frame to receive said strip and twist the same between said dies.

4. In a machine for forming cables or conductors composed of an outer member formed of strands and a twisted inner member, the combination of a gathering means for the strands of the outer member, a holding die on one side of said means for said members, a revoluble frame on the other side of said means for carrying the bar or strip to be twisted, a die on said frame to receive said strip and twist the same between said die, and a tension bar or strip on said twisting die for engaging with the strip to be twisted.

5. In a machine for forming cables or conductors composed of an outer member formed of strands and a twisted inner member, the combination of a gathering means for the strands of the outer member, a holding die on one side of said means for said members, a revoluble frame on the other side of said means for carrying the bar or strip to be twisted, a die on said frame to receive said strip and twist the same between said die, and a spring operated tension bar or strip on said twisting die for engaging with the strip to be twisted.

6. In a machine for forming cables or conductors composed of an outer member

formed of strands and a twisted inner member, the combination of a gathering means for the strands of the outer member, a holding die on one side of said means for said members, a revoluble frame on the other side of said means for carrying the bar or strip to be twisted, a die on said frame to receive said strip and twist the same between said die, a tension bar or strip on said twisting die, a spring engaging with said bar or strip, and a screw-bar engaging with said spring to regulate the tension on said bar or strip.

7. In a machine for forming cables or conductors composed of an outer member formed of strands and a twisted inner member, the combination of a gathering means for the strands of the outer member, a holding die on one side of said means for said members, a revoluble frame on the other side of said means for carrying the bar or strip to be twisted, a die on said frame to receive said strip and twist the same between said die, a tension bar or strip on said twisting die, a spring engaging with said bar or strip, a screw-bar on said frame and adapted to engage with said spring to regulate the tension on said bar or strip, and a jam nut engaging with said bar and bearing against said frame.

In testimony whereof, I, the said GEORGE R. KRESS, have hereunto set my hand.

GEORGE R. KRESS.

Witnesses:

JAMES L. WEHN,  
J. N. COOKE.