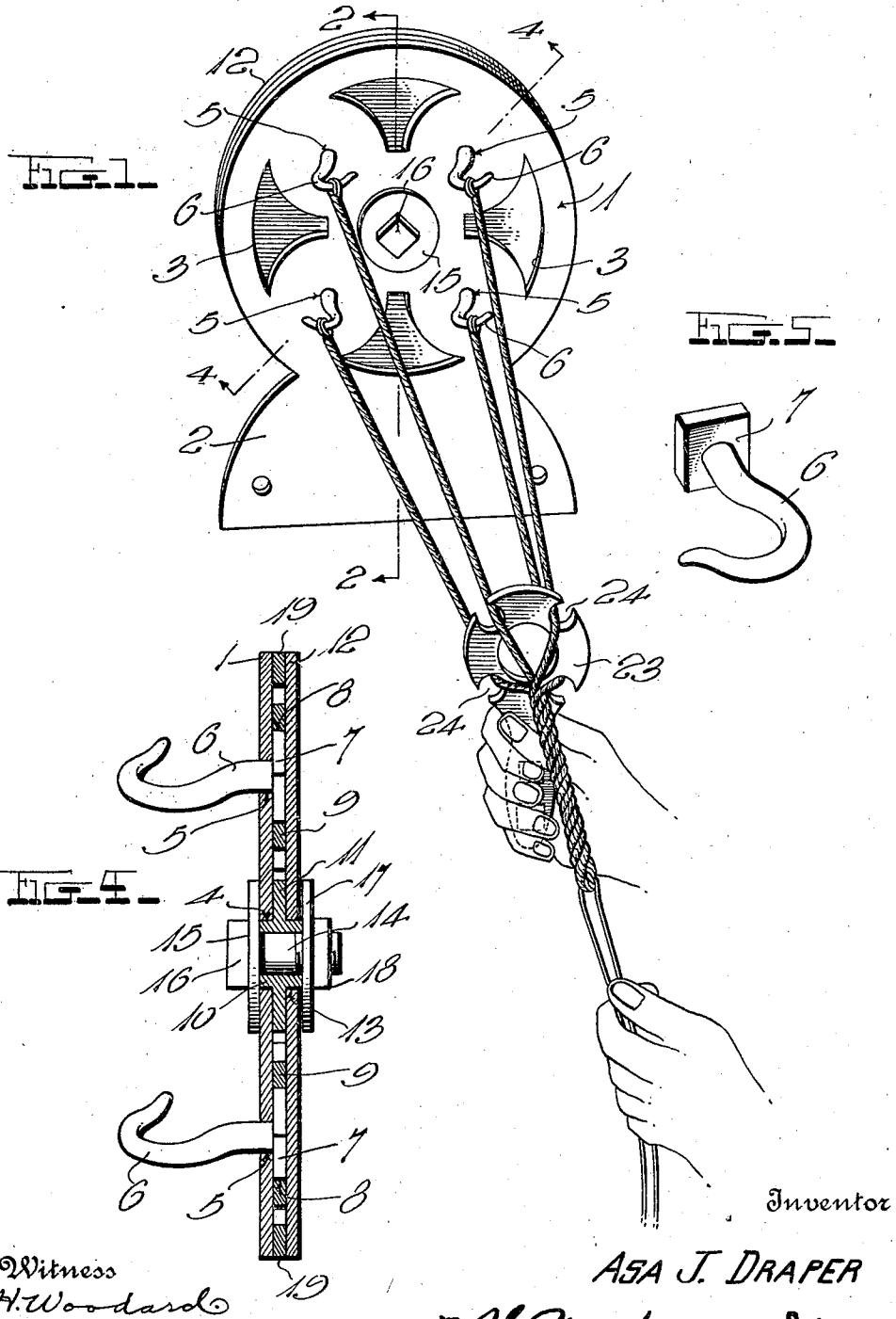
Sept. 11, 1923. 1,467,539

A. J. DRAPER

STRAND TWISTER

Filed Nov. 23, 1922 2 Sheets-Sheet 1



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FIG. 1.

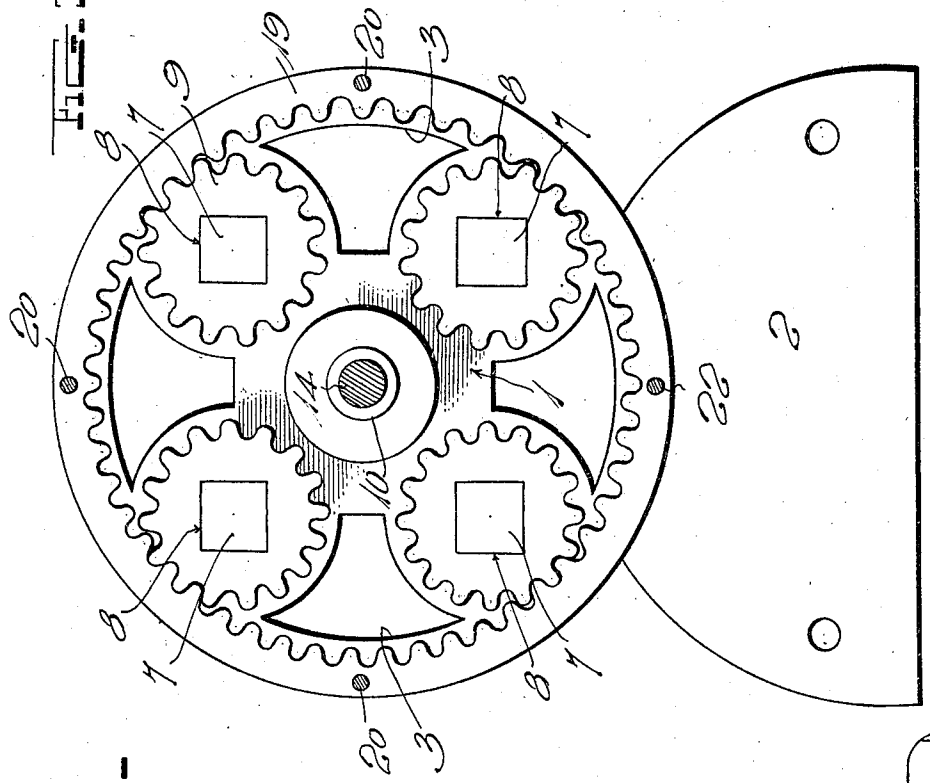
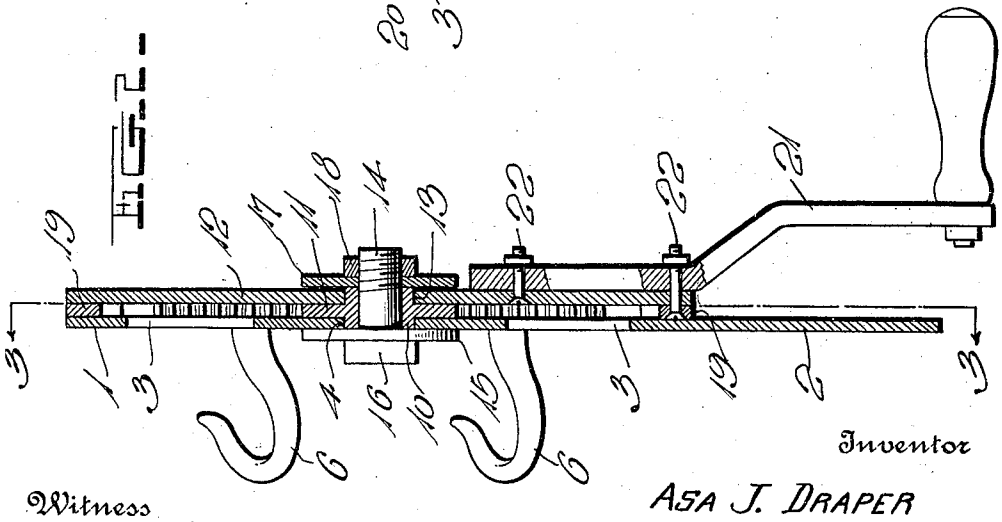


FIG. 2.



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UNITED STATES PATENT OFFICE.

ASA J. DRAPER, OF OGDEN, UTAH.

STRAND TWISTER.

Application filed November 23, 1922. Serial No. 602,829.

To all whom it may concern:

Be it known that I, ASA J. DRAPER, a citizen of the United States, residing at Ogden, in the county of Weber and State of Utah, have invented certain new and useful Improvements in Strand Twisters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices for twisting together a plurality of strands of cord or wire for the purpose of forming a rope or cable. The device is of the general nature of prior devices having a plurality of circumferentially spaced rotatable hooks for twisting the strands so that they will later twist about each other. It is the object of the present invention however to improve upon the construction of prior devices of the same character, to such an extent that an extremely simple and inexpensive device is provided, yet one which will be highly efficient and durable.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Figure 1 is a perspective view of a strand twister constructed in accordance with my invention, showing the manner of twisting a number of strands together.

Figure 2 is a vertical sectional view as indicated by line 2—2 of Fig. 1.

Figure 3 is a vertical sectional view at right angles to Fig. 2, as indicated by line 3—3 thereof.

Figure 4 is a sectional view as indicated by line 4—4 of Fig. 1.

Figure 5 is a perspective view of one of the strand twisting hooks.

In the drawings above briefly described, the numeral 1 designates a flat front plate which is preferably of substantially circular form, being provided however with a depending extension 2 by means of which it may be rigidly secured to an appropriate support. The openings 3 which I have shown in this plate are principally to save metal and decrease weight, but attention is directed to the fact that the spout of an oil can may be inserted through these openings for oiling the pinions yet to be described.

Plate 1 is formed with a relatively large central opening 4 and with a plurality of smaller circumferentially spaced openings 5 which are equidistant from said central opening. The plate is preferably stamped from a single piece of metal of suitable gage and all of the openings may be formed in said plate by a single stamping operation, at the time of cutting the plate the desired shape. The openings 5 rotatably receive the shanks of a plurality of twisting hooks 6, the rear ends of said hooks having flat heads 7 which are preferably although not necessarily of the square form shown. These heads 7 are snugly received in similarly shaped openings 8 in a plurality of flat pinions 9 which contact with the rear side of the front plate 1 and it will thus be seen that rotation of said pinions will rotate the several hooks to twist strands in the required manner.

The front end of a bearing sleeve 10 is snugly received in the central opening 4 of the front plate 1, this sleeve being provided with an outstanding flat flange 11 which is preferably the same thickness as the pinions 9, said flange contacting with the rear side of the front plate 1 as shown clearly in Figs. 2 and 4. A circular back plate 12 is formed with a central opening 13 which receives the rear end of the bearing sleeve 10 so that said rear plate may rotate upon said sleeve, the two plates 1 and 12 being spaced apart sufficiently to prevent binding the pinions 9 and the heads 7, by means of the flange 11.

I provide common means for securing the bearing sleeve 10 snugly in the opening for 4 of the front plate 1 and for preventing the rear plate 12 from moving rearwardly off of the bearing sleeve. I prefer to pass an ordinary bolt 14 through the sleeve 10, this bolt being provided with a washer 15 between its head 16 and the front plate 1 and having another washer 17 which is clamped against the rear end of the sleeve 10 by the nut 18. The space between the flange 11 and the washer 17 is slightly greater than the thickness of the disk 12, whereby the latter may freely rotate. The peripheral portion of this back plate or disk 12 is provided with a flat internal gear ring 19 which is secured thereto by any preferred means such as rivets 20, said gear ring meshing with the pinions 9 for rotating all of the latter and the hooks 6, when the back plate 12 and said gear ring are rotated, for in-

stance by means of a suitable handle 21. This handle may well be secured to the plate or disk 12 by bolts or rivets 22, one of which preferably passes through the gear ring 19 as disclosed in Fig. 2, thereby assisting in securing it to the plate 12.

All parts so far described are stamped from suitable gage sheet metal with the exception of the bearing sleeve 10 and the hooks 6. The sleeve and its flange 11 are preferably turned, while the hooks and their heads 6 may be drop forged. By employing a construction which may be constructed in these well known ways, that is principally of the stampings and forgings, the device may be easily and inexpensively manufactured and marketed, yet it will be efficient and durable.

Preferably used in connection with the features above described, is a suitable threader or strand guide 23 which may well be stamped from a metal plate. The strands to be twisted are suitably engaged with notches 24 of this device and with the hooks 6 and the threader 23 is then held against rotation while the handle 21 is operated to simultaneously rotate the hooks 6 in the same direction. This twists the several groups of strands together and when the desired amount of twisting has been effected, the threader 23 is moved toward the front plate 1, thus permitting the twisted groups of strands to twist about each other in rear of said threader, forming a length of rope. Obviously, the size and length of the rope to be made may be varied at will by using any desired number of strands and by varying the lengths of the latter.

As excellent results have been obtained from the details disclosed, they are preferably followed. However, within the scope of the invention as claimed, numerous minor changes may be made.

I claim:

1. A strand twister comprising a flat rigid front plate having a plurality of circumferentially spaced openings, a plurality of twisting hooks having shanks rotatable in said openings, the rear ends of said shanks having flat heads bearing against the rear side of said front plate, flat pinions contacting with said rear side of said front plate and having central openings non-rotatably receiving said heads, a rotatable back plate engaging the rear sides of said pinions and said heads and having an internal gear ring meshing with said pinions, and means rotatably mounting said back plate on said front plate.

2. A strand twister comprising a rigid front plate having a substantially central opening and circumferentially spaced openings equidistant from said central opening, twisting hooks having shanks rotatable in said circumferentially spaced openings, flat pinions connected with the rear ends of said shanks and contacting with the rear side of said front plate, a bearing sleeve snugly received in said central opening of said front plate and having an outstanding flange contacting with the rear side of said plate, said flange and pinions being of substantially uniform thickness, a rotatable back plate having a central opening receiving the rear end of said bearing sleeve, said back plate having an internal gear ring meshing with said pinions, and a bolt passing through said bearing sleeve, said bolt securing said sleeve to said front plate and preventing removal of said back plate from said sleeve.

In testimony whereof I have hereunto affixed my signature.

ASA J. DRAPER.