Jan. 2, 1923. 1,440,627

H. C. RASMUSSEN ET AL.
STRAPPING APPARATUS.
FILED MAR. 17, 1919.

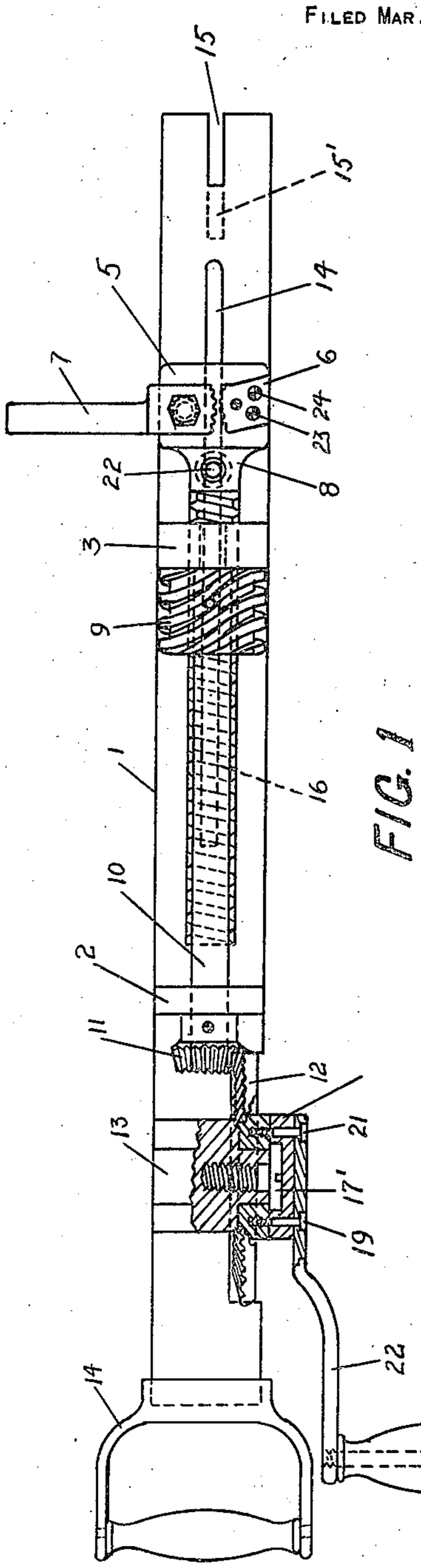

FIG. 1

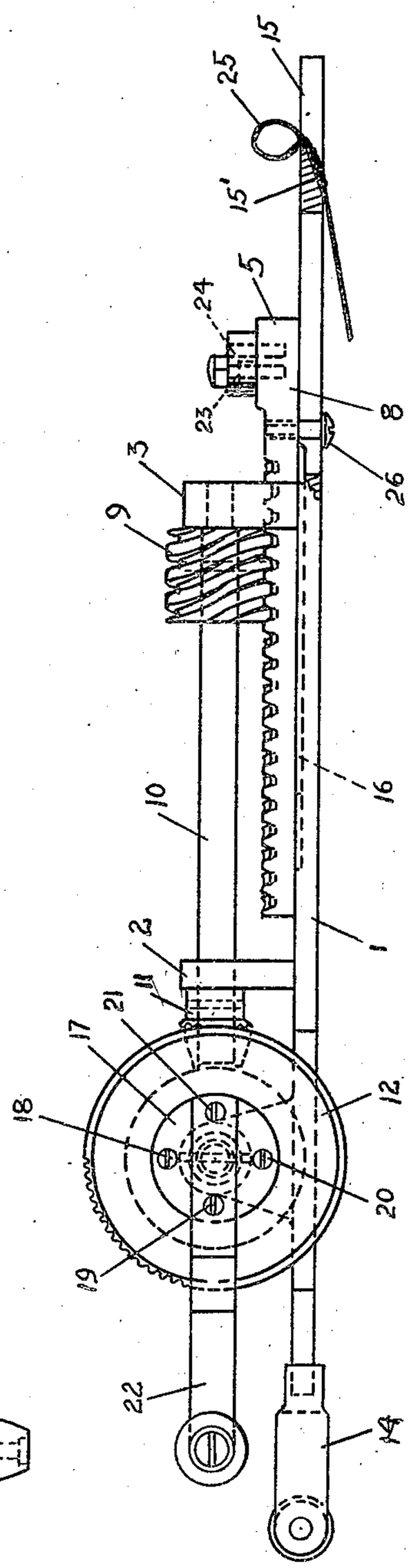

FIG 2

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UNITED STATES PATENT OFFICE.

HARRY C. RASMUSSEN AND JOSEPH KELLNER, OF BROOKLYN, NEW YORK.

STRAPPING APPARATUS.

Application filed March 17, 1919. Serial No. 283,161.

To all whom it may concern:

Be it known that we, HARRY C. RASMUSSEN and JOSEPH KELLNER, both citizens of the United States, residing in the city of Brooklyn, county of Queens, State of New York, have invented certain new and useful Improvements in Strapping Apparatus, of which the following is a clear, full, and exact description.

Our invention relates to apparatus such as is used in the binding or strapping of boxes, cartons, etc., with wire or the like.

One of the objects of our invention is to provide a device of this type which can be manufactured at low cost, and which can be firmly and safely held and efficiently operated.

Another object of the invention is to provide means at one end of the device to grasp the binding wire and hold same at the twisted portion of the looped end where it will endure the most strain and tension, which method of holding the wire will obviate the necessity of renewing and repairing the loop retaining device as employed in present devices of this character.

Another object of our invention is to provide means for holding the wire loop at the end in an upright position, which will readily allow the insertion of the other end of the wire for proper fastening and junction.

Another object of our invention is to permit of the device being firmly held in place on the article to be bound, both by means of the breast plate or handle at one end and the flat edge of the other end.

Another object of our invention is to provide driving means operable from the side by means of a specially devised driving mechanism, multiplying the applied power, and providing a compact, safe and strong combination of handle and driving means. This arrangement of operation from the side enables the operator to hold the device by the handle or breast-plate by one hand, and simultaneously operate the device with the other hand.

Further objects of our invention will appear more fully hereinafter. The invention consists substantially in the construction, combination, location and relative arrangements of parts, all of which will be more fully set forth hereinafter, as shown in the accompanying drawings and finally pointed out in the appended claims.

Referring to the drawings, in which the same part is designated by the same reference numeral wherever it occurs throughout several views:

Figure 1 is a plan view, partly in section, of a structure embodying our invention, showing the driving gear and method of securing same;

Figure 2 is a side view of the device, partly in section, showing the manner in which the loop is held.

As shown in the drawings, base 1 has mounted thereon, preferably integral, the bearings or brackets 2 and 3. Slot 4 is provided to allow the block member 5 to slide back and forth on base 1. This block 5 has a stationary member 6 and a movable member 7 secured thereto, both of which are preferably provided with gripping teeth to grasp one end of the wire between them in the usual manner. Member 5 is also secured to gear rack 8, which is slidably mounted in bracket 3 and groove 16, and is operable back and forth by the worm 9.

Revolubly mounted in brackets 2 and 3 is the shaft 10, having secured thereon the worm 9 and the bevel gear 11. Meshing with gear 11 is driving gear 12, which is mounted in bracket 13, also preferably integral with base 1.

The handle 14, or other means of holding the apparatus, is provided at one end. At the opposite end of the device is provided a slot 15, which is narrower at the bottom than at the top, having slightly tapered walls. Slot 15 is also provided with an inclined groove or passage 15′ leading up to it to provide a non-cutting and smooth lead for the binding wire. The purposes and advantages of slot 15 will be hereinafter more fully explained.

As shown in section in Figure 1, the gear 12 is firmly held in place by the set screw 17′ over which is secured the cap 17, which is provided on the inside to fit over the set screw 17′ and flush with the surface of gear 12. Screws 18, 19, 20 and 21 pass through the cap 17 and into the gear 12, and screws 19 and 21 also pass through the handle 22, securing the same to cap 16 and gear 12, thereby making a strong, firm and convenient method of operating the device.

As shown in Figure 2, pin 26 projects through slot 4, holding the block 5, which has mounted thereon the gripping jaws 6 and 7 in a manner familiar to those skilled

in the art. Pins 23 and 24 secure the member 6 to block 5.

Figure 2 shows the method in which the wire loop 25 is held in the slot or jaw 15 in a manner which will prevent breaking of the loop, at the same time holding it in an upright position through which loop the other end of the wire may be readily and easily passed.

A description of the operation of this device is as follows, by which the improvements and benefits of the device will readily be apparent to one skilled in the art:

The usual wire as employed in this character of work is passed around under the box to be wire-bound, and both ends brought to the top. The apparatus herein described is then jammed underneath the looped end of the wire, which is pushed into the tapered slot or jaw 15. The opposite end of the wire is then led into the slot 15 and through the loop, which is automatically held in an upright position, and inserted between the jaw members 6 and 7. The handle of member 7 is then pushed down, firmly securing the free end of the wire. The apparatus is then placed at an angle on the box and can be fixedly held in position by the operator by means of the handle or breast-plate 14, due to the driving mechanism being operable from the side, and the straight edge which rests on the box provides a rigid base on which pressure may be exerted without danger to the operator in the event of the breaking or parting of the wire. The side handle 22 is then operated, which moves the gear 12 therewith, revolving gear 11 and worm 9, which worm 9 moves the gear rack 8 away from the loop 25, thereby tightening the binding wire. When the desired tautness of binding is obtained, the apparatus is turned over on its straight lower edge, the straight end of the wire thereby becoming bent or hooked over the loop, which is slipped out of slot 15 by the same operation; the device is then withdrawn by releasing the jaws 6 and 7, and the crossing or junction point of the wires is dealt a few blows with a hammer or the like. The remaining unused portion of the wire is then twisted around the bound wire, thereby making a rigid and tight junction of the loop and the straight end.

While we have shown and described a specific structure embodying the principles of our invention, we wish it to be understood that our invention in its broad scope as defined by the claims is not to be limited or restricted thereto, as many changes and details of construction will readily appear to those skilled in the art without parting from the contemplated spirit and scope of our invention.

Having now described the objects and nature of our invention, what we claim as new and useful and of our own invention and desire to secure by Letters Patent is:

1. In a device of the character described, a base member having means to receive and engage one end of a binding wire, a block member mounted to slide upon said base member and having clamping means to receive and retain the other end of the binding wire, a slide rack connected to said block member, a worm gear engaging said rack, a shaft on which said worm gear is mounted, bearings carried by said base member in which said shaft is journaled, and gearing for rotating said shaft.

2. In a device of the character described, a base member having a slot to receive and engage one end of a binding wire, a block member mounted to slide upon said base member, clamping means on said block member for receiving and holding the other end of the binding wire, a slide rack connected to said block member, a worm gear engaging said rack, a shaft on which said worm gear is mounted, bearings carried by said base member in which said shaft is journaled, a bevel gear mounted on said shaft, a cooperating bevel gear journaled upon said base member and means for rotating said cooperating bevel gear.

3. In a wire binding device, a base member provided with a gripping slot at one end for receiving and holding the shank of the loop end of a binding wire, said base member having a handle at the end opposite said gripping slot and a guiding slot therebetween, a block member, a projection on said block member for engaging said guiding slot, a clamping member and gear teeth projecting from the same face of said block member on opposite sides of said projection, bearing brackets carried on said base member, and means carried by said brackets for moving the block to tension the binding wire.

Signed at the county of Queens, borough of Queens and State of New York, this 11th day of March, one thousand nine hundred and nineteen.

HARRY C. RASMUSSEN.
JOSEPH KELLNER.