April 20, 1926. 1,581,965

A. F. LEBOSSÉ ET AL

MACHINE FOR MAKING WIRE FABRIC

Filed March 15, 1926 2 Sheets-Sheet 1

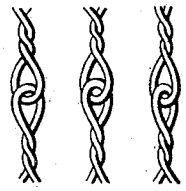

Fig. 1.

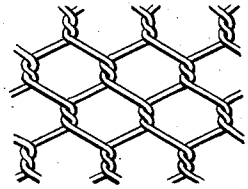

Fig. 2.

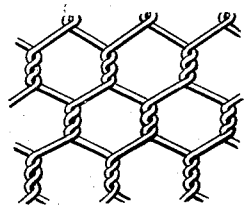

Fig. 3.

Fig. 7

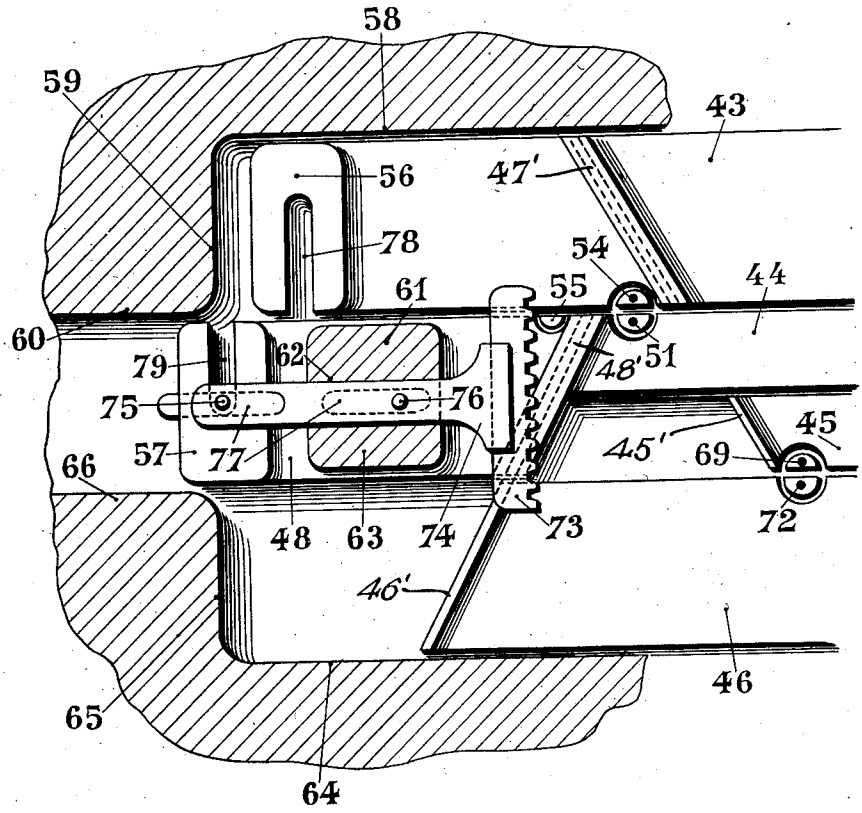

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Fig. 4.

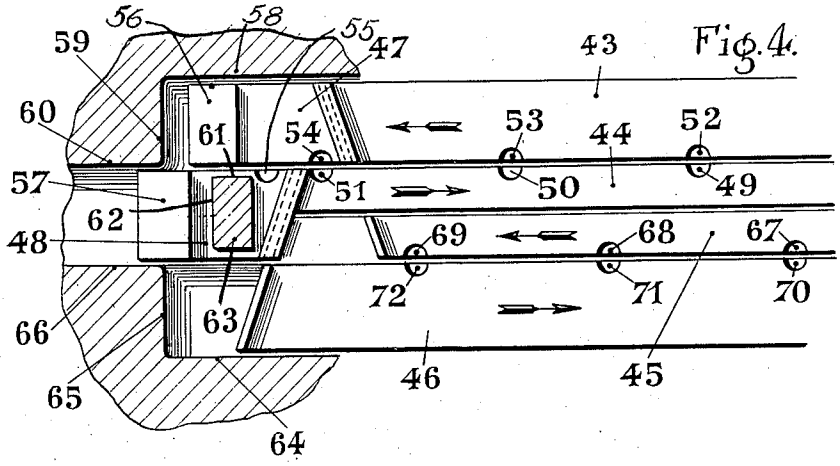


Fig. 5

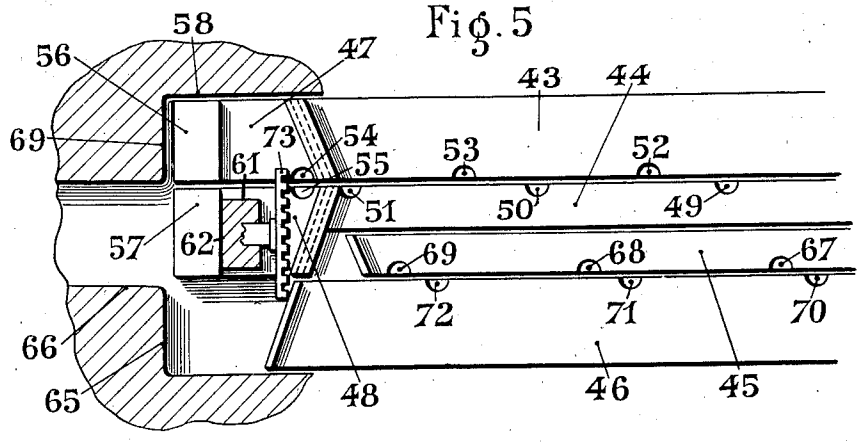
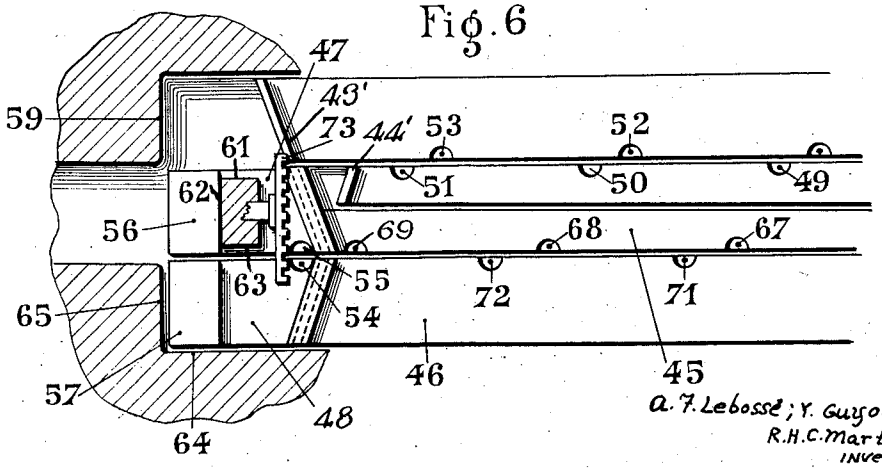


Fig. 6



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UNITED STATES PATENT OFFICE.

ALBERT FRANÇOIS LEBOSSÉ, OF STE.-ADRESSE, AND YVES GUYON AND RENÉ HENRI CHARLES MARTY, OF PARIS, FRANCE.

MACHINE FOR MAKING WIRE FABRIC.

Application filed March 15, 1926. Serial No. 94,934.

To all whom it may concern:

Be it known that we, ALBERT FRANÇOIS LEBOSSÉ, YVES GUYON, and RENÉ HENRI CHARLES MARTY, citizens of the Republic of France, residing the first at Ste.-Adresse, Seine Inférieure, France, and the other two at Paris, France, have invented certain new and useful Improvements in Machines for Making Wire Fabric, of which the following is a specification.

This invention relates to a machine for making tubular reticulated metal fabrics from which bags for holding and transporting various articles may be formed, and has for its object an improved construction.

According to this invention the bag is formed of netting the meshes of which are hexagonal and have four sides constituted by single wires and two opposite sides each constituted by two wires twisted together for at least two half turns.

The machine for making the bag is one in which a series of pairs of complementary, semi-cylindrical segments are aligned and housed in semicircular recesses formed in the contacting surfaces of sliding members, all the pairs of complementary segments being provided with pinions which are adapted to receive collectively a rotational movement from a sliding rack arranged within one of the longitudinal slides. The slides occupy certain relative positions, with the object of twisting a pair of metal wires passing through the respective segments, so as to form the netting, whilst the segments are adapted to be moved intermittently in a longitudinal direction by the slides, so as to occupy positions in which other selected pairs receive a rotational movement, the arrangement being such that the segments do not turn during the intermittent longitudinal movement imparted to the slides. In accordance with this invention the machine has two series of similar segments arranged in parallel planes, each series being operated by a pair of sliding bars similar to the slides in the ordinary wire netting machines and a pair of transversing transfer members or similar means at each end of the sliding bars adapted to produce an exchange of segments from one plane to the other to produce an interlacing of the webs in each plane, said machine thus being capable of producing a tubular netting, in one piece and with an odd or even number of twists.

The invention relates more particularly to a form of machine having two parallel rows of pairs of segments housed in two pairs of slides side by side, at the ends of which are arranged two pairs of transversely movable members. One of the members of each pair forms an extension of one of the slides at its rear end and is adapted to reciprocate with one of the slides in the plane of one series of segments, whilst the second transversely movable member presents in front of a threaded segment disposed in a recess in the first transversely movable member, and which is to be transferred to the other plane in line with the second series of segments, a half segment containing no wire, the two members then describing together a transverse movement during which the threaded segment is replaced by the empty segment by a rotational movement by means of a rack mechanism, the transverse movement ceasing when the second transversely movable member has transferred the segment to the other plane, said second transversely movable member then reciprocating with the slide of the second series of segments until it has brought the threaded segment in front of a threaded segment of the second series.

Owing to the fact that these machines are intended for the manufacture of bags and not continuous netting, instead of employing bobbins of wire, as in the ordinary wire netting machines, the segments may be threaded with only a sufficient length of wire to form a bag.

Figures 1, 2 and 3 are fragmentary views representing types of netting which may be employed for making wire bags;

Figures 4, 5 and 6 represent, in three different positions, a portion of one form of the machine, shown diagrammatically and in horizontal section;

Figure 7 represents, on a larger scale, the detail of a rack operating mechanism in this machine.

The body of the bag may be made in one piece by working in a closed circuit, or may consist of several parts, fastened together by sewing, soldering, interlacing, hooking, twisting, twining, knotting or some equivalent method.

Referring to the drawings it will be seen that the slides 43, 44, 45 and 46 are arranged in parallel relation to each other. The semi-cylindrical spindles or segments 49, 50, 51,

52 and 53, are disposed in recesses in the slides 43 and 44 to operate in one plane, while the spindles or segments 67, 68, 69, 70 and 71 are disposed in recesses in the slides 45 and 46 to operate in a second plane. The twisting operation performed by the segments mentioned above is similar to that performed by a well-known type of wire netting machine employing segmental spindles and racks for rotating the spindles and needs no further explanation.

It will be observed, by reference to the drawings, that the slides 43 and 46 are of the same width but that the slides 44 and 45 are each half as wide as slides 43. At each end of the machine are two supplemental slides 47 and 48, each having a width equal to that of the slide 43. The supplemental slides 47, 48 are provided with channels 47', 48', in which are adapted to fit ribs 43', 44', 45', 46' on the ends of the slides 43, 44, 45 and 46, thus providing an interlocking connection between the main and supplemental slides so that, when properly positioned, as will be more fully explained hereinafter the supplemental slides may be carried and reciprocated by the main slides.

In addition to the longitudinal reciprocation imparted to the supplemental slides 47, 48, the supplemental slides are adapted to be given a transverse movement by the main slides. As will be seen in the drawings the abutting faces of the main and supplemental slides are obliquely disposed to the direction of longitudinal movement of the slides. When the slide 43 has forced the slide 47 against wall 59, further movement of slide 43 towards the left will tend to cam the slide 47 in a transverse direction. The slides 47, 48 are adapted to abut each other so that transverse movement of the slide 47 will cause a similar movement of the slide 48, i. e., a transverse movement.

The walls 58, 59, 60, 64, 65, 66 of the channels in which the slides reciprocate act as guides or stops for the slides. The faces 61, 62, 63 of an abutment of the frame also act as guides and stops for the slides, their function being more fully explained hereinafter.

Each of the slides 47, 48 is provided with a semi-circular recess, a blank segment 55 being disposed in the recess in the slide 48, while a threaded segment 54 is placed in the recess in the slide 47. These segments are brought into alignment immediately before the transverse movement of the slides 47, 48, occurs. As the segments 54, 55, are transferred from the plane of one series of spindles to the other, the segments 54, 55, are given a rotary movement by pinions (not shown) on the segments which roll on the rack 73. For the sake of clearness the rack 73 has been omitted from Fig. 4.

During the transverse movement of the two members 47 and 48, the rack 73 remains stationary, the segments 54 and 55 meshing with it and turning so that they change places during the movement.

Figure 6 shows the position of the members 47 and 48 at the moment when the transverse movement has just been completed. As the slides 43, 44, 45, and 46 continue to move, the members 47 and 48 are given a longitudinal movement, and the same steps take place, as at the beginning of the movement, but in inverse order. The member 48 is moved so as to present the segment 54 opposite the segment 69, whilst the other segments are mated, i. e., 51 with 53, 68 with 72, and so on, and all the parts are in position for effecting the subsequent twisting under the action of racks situated inside the slides as in the ordinary wire netting machines, and not shown in the accompanying drawings.

The rack 73 can be actuated in the following manner:—its support 74 (Figure 7) is guided by two pins 75 and 76, sliding in slots 77 in the frame and parallel with the slides 43, 44 and 45 and 46. Projections 56 and 57 on the slides 47 and 48 respectively are formed with grooves 78 and 79 adapted to engage the pin 75. Thus the rack 73 participates in the longitudinal movement of whichever of the members 47 or 48 is in alignment with the slides 44 and 45. Thus the segment 55, which carries no wire, is engaged continuously by the rack 73, whilst the wire-carrying segment 54 engages the rack 73 at the beginning of the movement, receives a rotational movement during its transverse passage, and is disengaged at the end of the transverse movement.

The operation of the machine will now be described:—Referring first to Fig. 4, the twisting operation by all the threaded spindles in each row has just been completed. In other words, two separate webs of netted fabrics in parallel planes are being woven by the usual twisting operation. In accordance with the purpose of this invention it is desired to form a tubular fabric and for this purpose the edges of the fabric are to be connected. At this phase of the operation of the machine the slides move in the directions indicated by the arrows in Fig. 4. The movements of the slides continuing it will be seen (Fig. 5) that the segment 54 is brought into alignment with segment 55. Slide 47 abuts wall 59, the projection 57 on slide 48 abuts the face 62, and the rack 73 has been moved towards the right by the projection 57. The slide 43 continues to move towards the left. At this point the slide 47 is forced, due to its inclined face, towards the slide 46 in a transverse direction, at the same time forcing the slide 48 in the same direction. The relative movements of the slides 48 and 46 are such that the rib 46' engages the channel 48', thus locking

the slide 48 to the slide 46. The segments 54, 55, are carried by the slides 47, 48, to the position shown in Fig. 6, rolling over the rack 73 in such a manner that the segment 54 is in alignment with the recesses in slide 46. The directions of movement of the slides 43, 44, 45 and 46 are now reversed and the segment 54 is brought under the segment 69. All of the threaded spindles are again rotated, the segment 54 twisting its wire with a strand of the web formed by the slides 45, 46. When the directions of movement are again reversed the segment 54 is returned to the plane of the web formed by the slides 43, 44. It will thus be seen that the edges of the webs formed in parallel planes are joined by the wire in segment 54.

It will, of course, be understood that a similar operation occurs at the other ends of the slides 43, 44, 45 and 46. In this manner a tubular netted wire fabric is produced, the advantages of which, particularly in the manufacture of wire bags, will be apparent.

What we claim is:

1. In a machine of the class described, a pair of slides provided on their adjacent faces with a plurality of cooperating semi-cylindrical spindles for netting a web of fabric, a second pair of slides provided on their adjacent faces with a plurality of cooperating semi-cylindrical spindles for netting a second web of fabric, and means for alternately transferring one of said semi-cylindrical spindles from one pair of slides to the other pair of slides to unite said webs.

2. In a machine of the class described, a pair of slides provided on their adjacent faces with a plurality of cooperating semi-cylindrical spindles for netting a web of fabric, a second pair of slides provided on their adjacent faces with a plurality of cooperating semi-cylindrical spindles for netting a second web of fabric, the faces of one pair of slides lying in a plane parallel to the faces of the other pair of slides, and means for alternately transferring one of said semi-cylindrical spindles from each end of one pair of slides to the ends of the other pair of slides, whereby the edges of the webs are united.

3. In a machine of the class described, a pair of slides provided on their adjacent faces with a plurality of cooperating semi-cylindrical spindles for netting a web of fabric a second pair of slides provided on their adjacent faces with a plurality of cooperating semi-cylindrical spindles for netting a second web of fabric, and means for alternately transferring one of said semi-cylindrical spindles from one pair of slides to the other pair of slides to unite said webs, said means being adapted to be reciprocated in the direction of movement of said slides during a portion of the reciprocation of the slides and to be moved angularly to said direction upon further reciprocation of said slides.

4. In a machine as claimed in claim 1, in combination with a rack for engaging the spindle while said spindle is being transferred from one pair of slides to the other pair of slides to rotate said spindle.

5. In a machine as claimed in claim 1, in combination with a rack for engaging the spindle while said spindle is being transferred from one pair of slides to the other pair of slides to rotate said spindle, and means for moving said rack out of engagement with said spindle after said spindle has been transferred from one pair of slides to the other pair of slides.

In testimony whereof we hereunto affix our signatures.

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YVES GUYON.
RENÉ HENRI CHARLES MARTY.