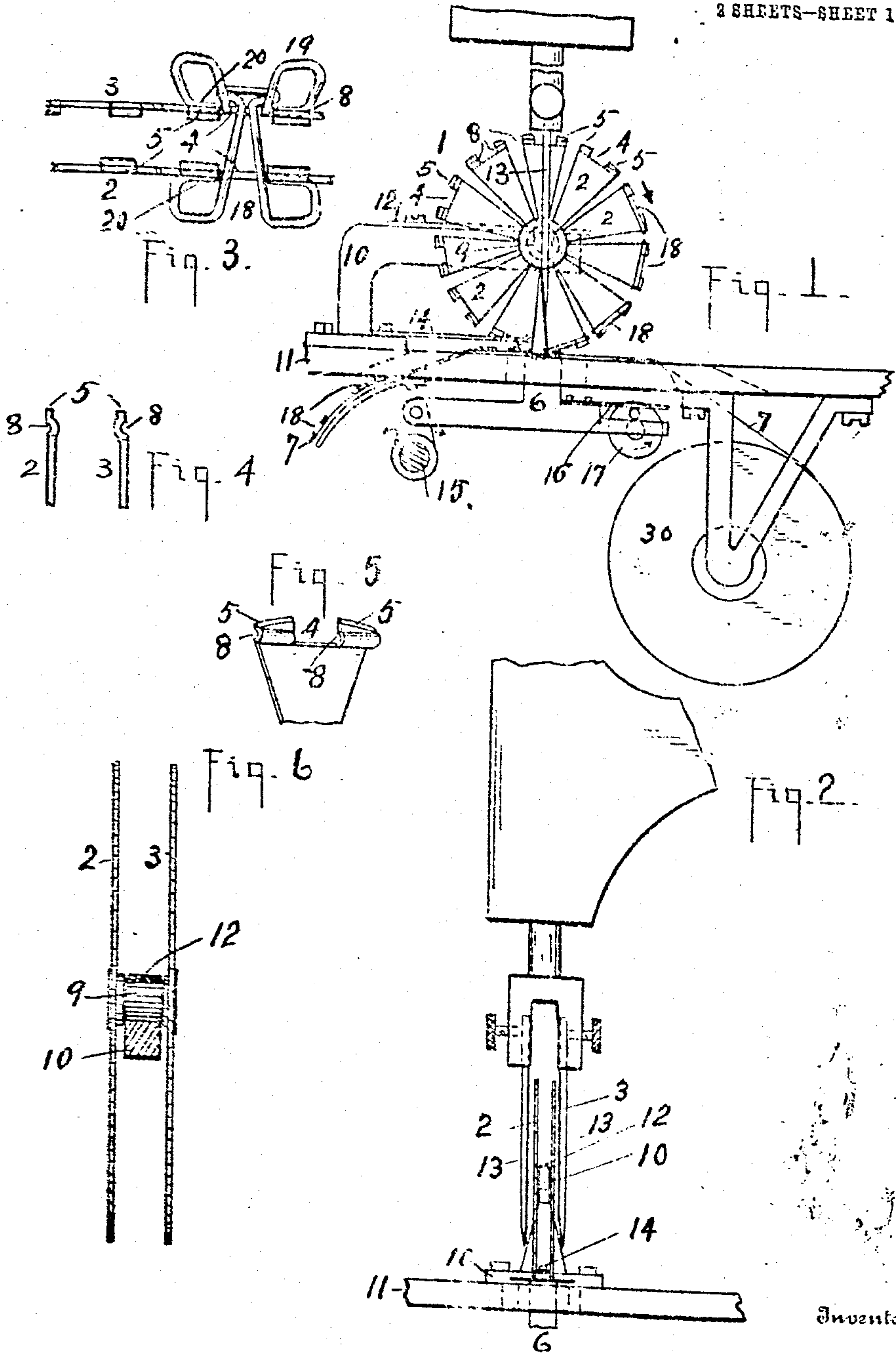


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 APPARATUS FOR ATTACHING HOOKS AND EYES TO TAPE, &c.
 APPLICATION FILED DEC. 14, 1907.

898,558.

Patented Sept. 15, 1908.

2 SHEETS—SHEET 1.



Witnesses

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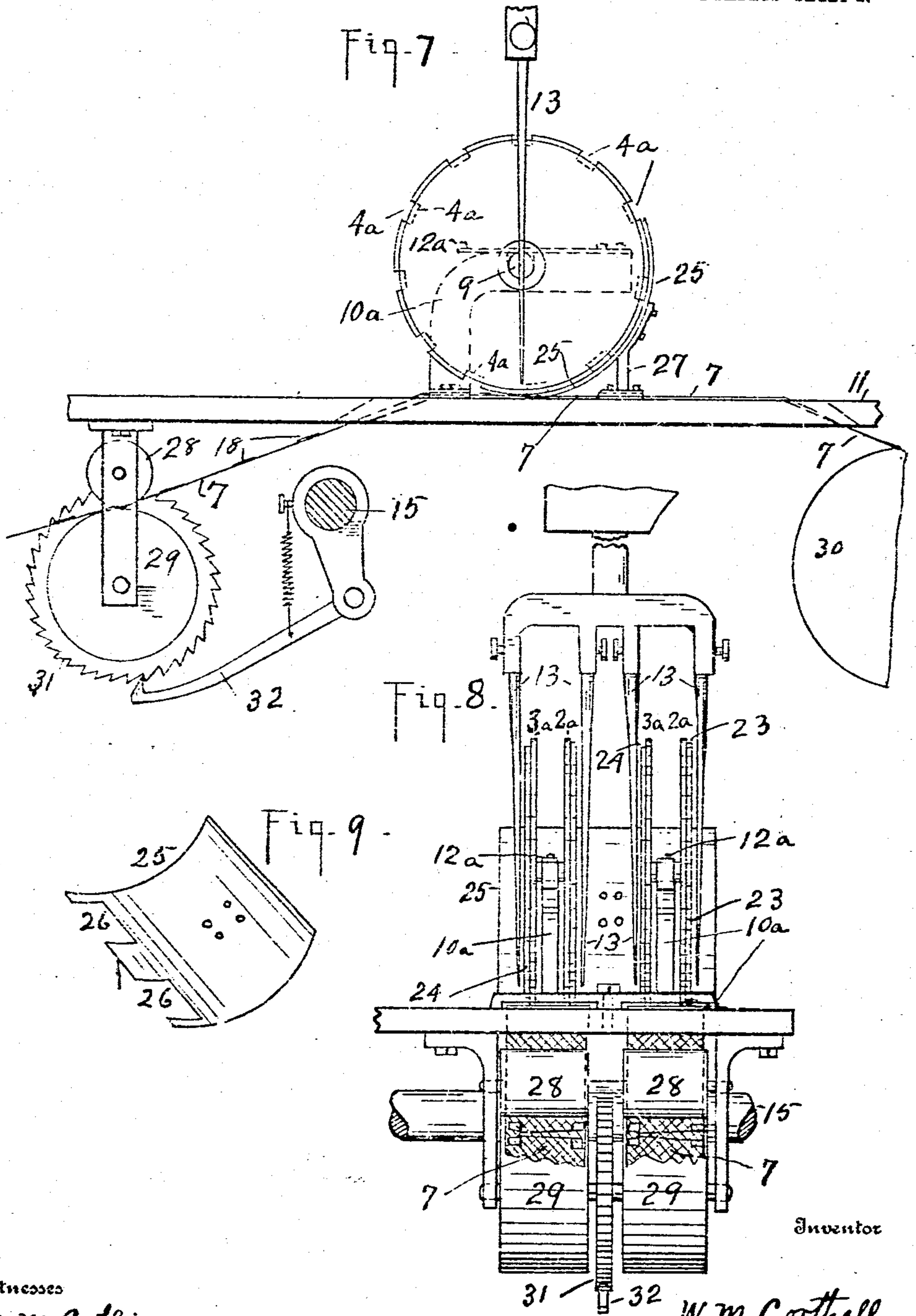
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR ATTACHING HOOKS AND EYES TO TAPE, &c.

No. 898,558.

Specification of Letters Patent. Patented Sept. 15, 1908.

Application filed December 14, 1907. Serial No. 496,478.

To all whom it may concern:

Be it known that I, WILLIAM M. CORTHELL, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain
5 new and useful Improvements in Apparatus for Attaching Hooks and Eyes to Tape, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the
10 art to which it pertains to make and use the same.

This invention relates to improved apparatus for attaching hooks and eyes to tape, ribbon, or the like, for market.

15 The main object of the invention is to provide simple, and convenient means for delivering hooks and eyes to a sewing machine and to a tape or ribbon to which they are to be sewed.

20 The invention consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawings which illustrate the improvement and form a part of
25 this specification,—Figure 1 is a partial side view of a sewing machine, with the hook and eye holder attached; Fig. 2 is a similar view at right angles to Fig. 1, certain parts being broken away; Fig. 3 is an enlarged view looking
30 at the free end of several spring arms, with a hook and eye in place between one pair of arms; Fig. 4 is an edge view of the hook and eye holding ends of a pair of opposite spring arms; Fig. 5 is a perspective view
35 of one of the same; Fig. 6 is an enlarged side view of the hook and eye holder, its axis bearing being in section; Fig. 7 is a partial side view showing a modification; Fig. 8 is an end view thereof; and Fig. 9 is a perspective
40 view of a guard.

Numeral 1 denotes a rotary hook and eye carrier or holder, adapted to receive and temporarily retain engaged hooks and eyes in pairs, and to present and hold the loops
45 thereof successively under the needles of a sewing machine for securing them to a tape or ribbon for sale.

The holder comprises two circular bodies having a series of parallel or nearly parallel
50 spring arms 2, 3, the arms of one series being opposite those of the other series, whereby the arms are in pairs. Said arms are radial, but preferably increase in width toward their outer ends to provide space for hook and eye
55 receiving notches 4, and lugs 5 at the ends of

such notches. It will be seen that the outer edges of lugs 5 are arcs of the circle constituting the periphery of said bodies, and it is against these edges in use that the feeding device 6 of the sewing machine acts to advance the holder the distance between successive thread loops of the hooks and eyes, at the same time that it acts on tape 7 to advance it, as hereafter described.

Straight across the outer ends of arms 2, 3
65 on the outside are retaining grooves 8. In Figs. 2 and 6 where edge views of these disks appear the grooved parts are omitted for convenience of illustration.

Preferably sheet metal disks by stamping
70 and forming are made into the shape shown and described, and are then suitably tempered. At the center the disks have openings adapted to fit onto a hub 9 which has a bearing in a bracket 10 secured to the bed
75 plate 11 of the sewing machine and arranged to extend between the disks 2, 3 at proper height, and said disks being situated between sewing machine needles 13 carried by a needle bar which terminates in a bifurcated needle holder adapted to straddle the rotary
80 holder in action.

On the top of the bracket is a spring 12 the forward end of which bears on the top of hub 9 so that the latter may rise under undue
85 strain, and whereby the holder may be removed when desired.

Mounted on the base of the bracket, or otherwise, is a bar or spring 14 extending between the disks near the bed plate and behind the needles.

15 denotes the ordinary reciprocating feed shaft of a sewing machine of the Singer type, connected by a crank to the feeding plate 6, the latter having a yielding spring 16 between which and the body of the plate is an
95 eccentric pin on a rotary shaft 17 to give an up and down movement to the plate 6.

The tape or ribbon 7 is carried on a reel, passes up through the bed plate, under the
100 holder and the needles, and again below the bed plate which is suitably slotted.

In practice an operator at the front of the machine places an engaged hook and eye in opposite notches 4 of a pair of arms 2, 3,
105 springing the arms toward each other slightly for the purpose. As shown in Fig. 3 the inner sides of the loops of the hook 18 and the eye 19 enter grooves 8 and therefore the hooks and eyes will not fall off while passing
110

from the position where they are put in (say at the position of the arrow in Fig. 1) to the position below the needles. After placing a hook and eye in the holder the operator momentarily starts the sewing machine in usual or suitable manner and sews the hook and eye loops below the needles to the tape, at the same time the next arms of the holder come to position to be filled, and the machine is or may be stopped for placing the next hook and eye in the holder. Just after passing the needles the hook last sewed is carried by the feed of the holder against the under side of spring 14 whereby the hook and attached eye are forced from the holder arms.

The described apparatus is primarily intended for securing hooks and eyes to tape or ribbon, but is also adapted for securing them to cards. In this case the ribbon supply reel 30 would not be used, but cards would be successively introduced by hand or otherwise between the feed device 6 and the holder, or holders, in case more than one is used, and would then be fed along by the under feed 6 as described for the tape.

When the machine is intended for cards, or for wide tape, a plurality of holders, instead of one only, may be mounted side by side, and the sewing machine furnished with two needles for each holder so that more than one row of hooks and eyes may be simultaneously sewed on. In such a case it would also be desirable to employ several of the feed plates or other feed devices.

In Figs. 7 and 8 the modified rotary holder comprises two parallel rigid metal disks or circular bodies 2^a 3^a with a hub resting in bearings in brackets 10^a, and top springs 12^a. The disk-bodies are shouldered around the periphery on the outside at 23, 24, the shoulder 23 on the hook engaging side being of less distance from the periphery, than the shoulder 24 on the eye side. The edges are notched at 4^a 4^a to the respective shoulders.

This holder is supported between needles as before described. Two of these holders are shown in Fig. 8 each with a separate ribbon 7.

25 denotes a guide extending from above the center of the forward side of the holders to a point just in advance of the needles. The lower end is notched at 26 to give space for passage of the ribbon or ribbons or cards. Evidently it is not necessary that the holders have one common guide. The guide is supported by a bracket 27, and at its lower end rests on the bed plate. The central lug between notches 26 is not essential. The guide is concentric with the holder and close to its periphery and serves to hold engaged hooks and eyes which are laid bottom side up in notches 4^a above the guide in place until they are brought by movement of the holders under the needles and are ready to be sewed on.

28, 29 denote feed rolls with rubber, felt or like surfaces between which tapes 7 pass and

by which they are drawn along step by step from the supply reel, at the same time turning the holder, or holders when more than one is used, which bears on the tape.

31 is a ratchet wheel engaged by a pawl 32 operated from the usual reciprocating feed shaft 15. The parts are so made that the holders advance the distance between successive loops at each reciprocation of the sewing machine needles.

Evidently an underfeed device 6, one or more of them, may be used with this form of holder, either as a substitute for the feed rolls, or in addition thereto. When cards are used instead of tape the under feed is preferable.

The invention is not limited to the particular feed devices described, nor to use of a sewing machine of any particular type. The holders are adapted for hooks and eyes of different forms (the notches etc. being of form and dimensions to correspond), but I have shown in Fig. 3 a hook 18 and eye 19 of novel form especially suited for the holders and for machine sewing. In these the loops instead of being round are approximately square, though a little distorted by the spread of the inner sides. This form provides straight loop-sides 20 to fit grooves 8, or to bear on shoulders 23, 24, and has other advantages.

Having described the invention what I claim is,—

1. In an apparatus for attaching hooks and eyes, the combination with a sewing mechanism comprising needles, of a rotary circular holder with means at the periphery of the holder for holding engaged hooks and eyes, and means to rotate the holder step by step to carry the hooks and eyes under the needles.

2. In an apparatus of the character described, the combination with a sewing mechanism comprising needles, and means for feeding ribbon or the like, of a vertically yielding rotary holder between said needles and adapted to carry hooks and eyes under said needles.

3. In an apparatus of the character described, a sewing mechanism comprising suitably operated needles, and means for feeding ribbon or the like, a support for the ribbon whereby the latter may pass from said support to the said feeding means and below the needles, and a rotary hook and eye holder between the needles and having a timed movement in relation thereto.

4. A rotary holder for hooks and eyes, a bearing for the axle of the holder, a spring bearing on said axle, and a feeding device for the holder.

5. A holder for hooks and eyes comprising circular substantially parallel bodies, and means for securing engaged hooks and eyes thereto at the periphery, a support on which

the holder can rotate, and means for advancing the holder step by step whereby the hooks and eyes are carried to and held in position for sewing to a tape or the like.

5 6. A holder for hooks and eyes comprising substantially parallel disks divided to form arms, and means at the outer ends for securing engaged hooks and eyes thereto whereby they may be held in position to be sewed to
10 a suitable body.

7. A holder for hooks and eyes comprising circular substantially parallel rotary bodies comprising several arms notched and grooved at their outer ends and adapted to hold
15 hooks and eyes in position to be sewed to a tape or equivalent.

8. The combination with needles of a sewing mechanism, of a rotary holder for hooks and eyes, means for securing hooks and eyes
20 thereto, and means operating after the hooks and eyes pass the needles to remove the hooks and eyes from the holder.

9. In an apparatus of the character described, sewing mechanism comprising nee-

dles and a feed shaft, a rotary holder between 25 the needles, means for securing hooks and eyes at intervals thereon, and feeding means for a body to which the hooks and eyes are to be sewed having a definite movement in relation to the needles whereby the hooks and
30 eyes are advanced step by step and sewed on.

10. In a holder for engaged hooks and eyes, series of spring arms in pairs and having hook and eye holding means at their
35 outer ends, said holding means forming two opposed circular series whereby engaged hooks and eyes may be held by the tension of said arms, means for supporting the holder and for rotating it step by step whereby such
40 hooks and eyes may be carried and held in position to be sewed to a suitable support.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WILLIAM M. CORTHELL.

Witnesses:

H. L. FRANC,
A. T. BURNS.