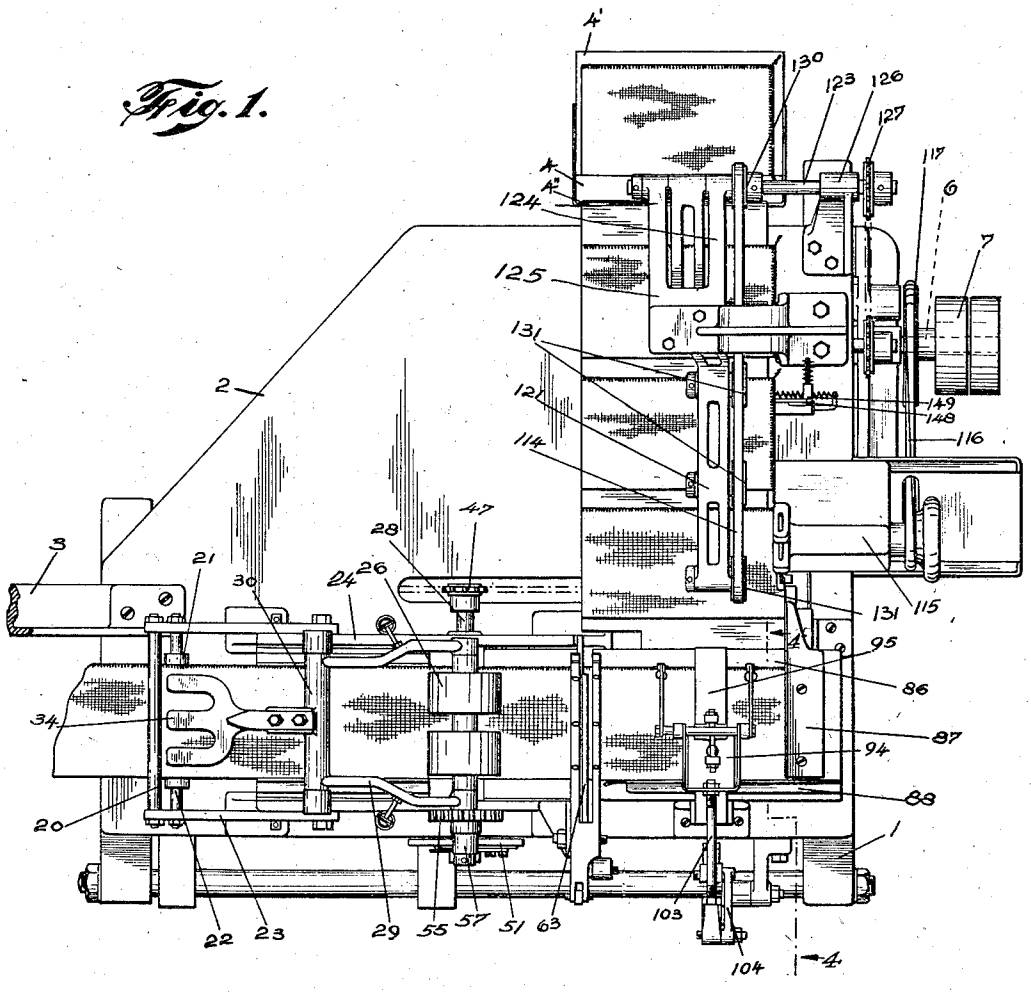
Jan. 7, 1936. H. IRMSCHER 2,027,172

BAG FORMING MACHINE

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Fig. 1.



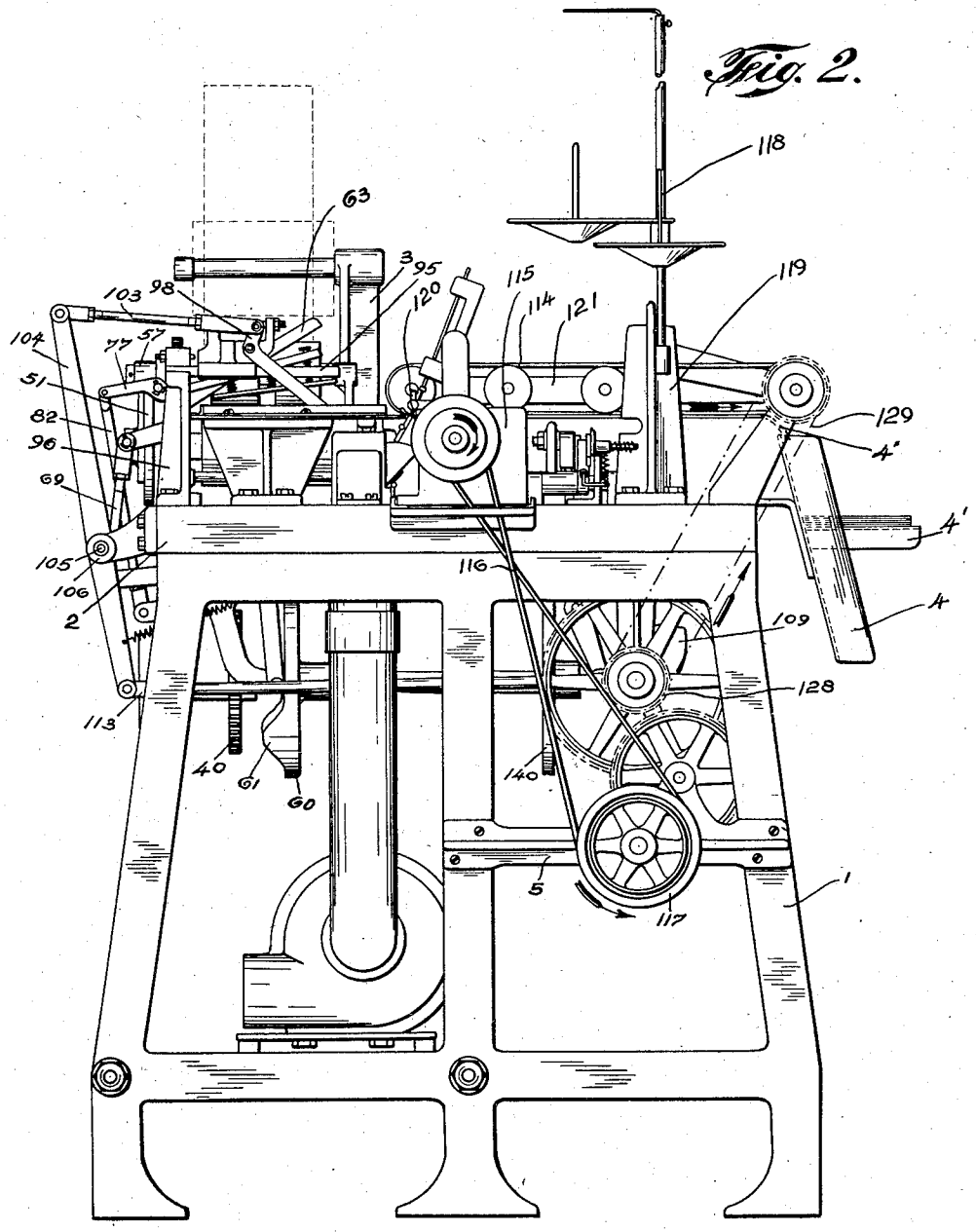
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BAG FORMING MACHINE

Filed July 6, 1931 6 Sheets-Sheet 2

Fig. 2.



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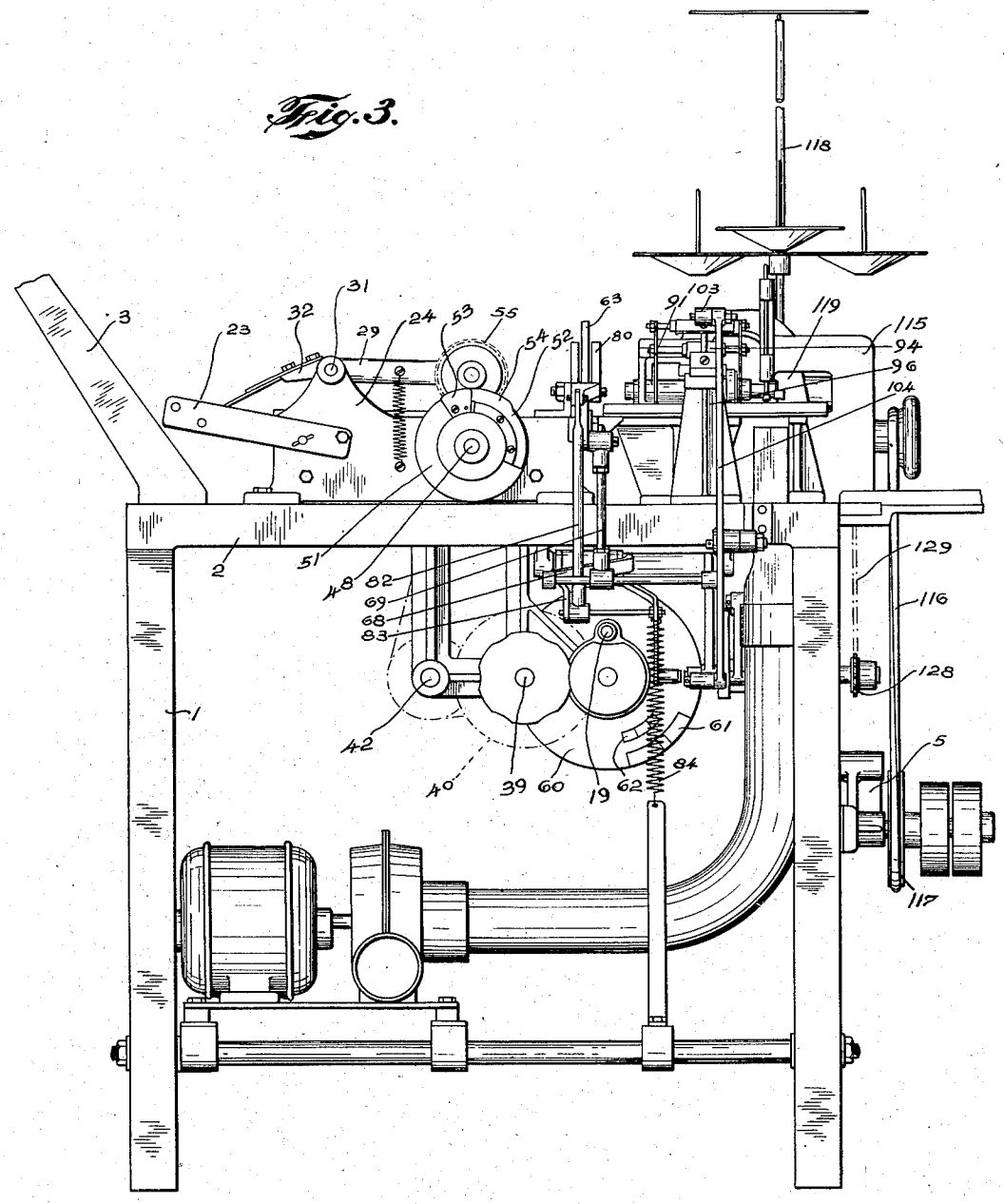
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BAG FORMING MACHINE

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Fig. 3.



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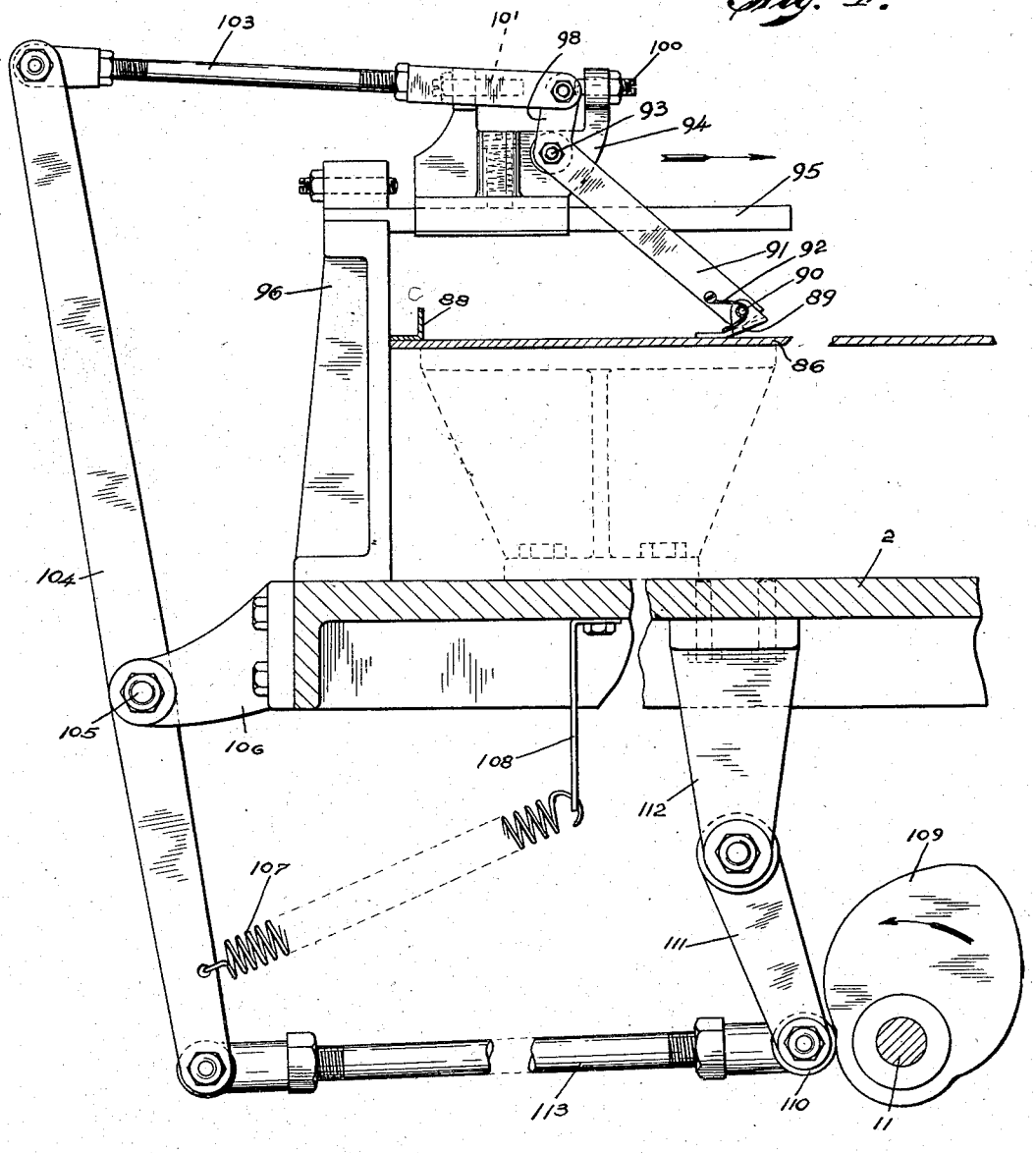
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Fig. 4.



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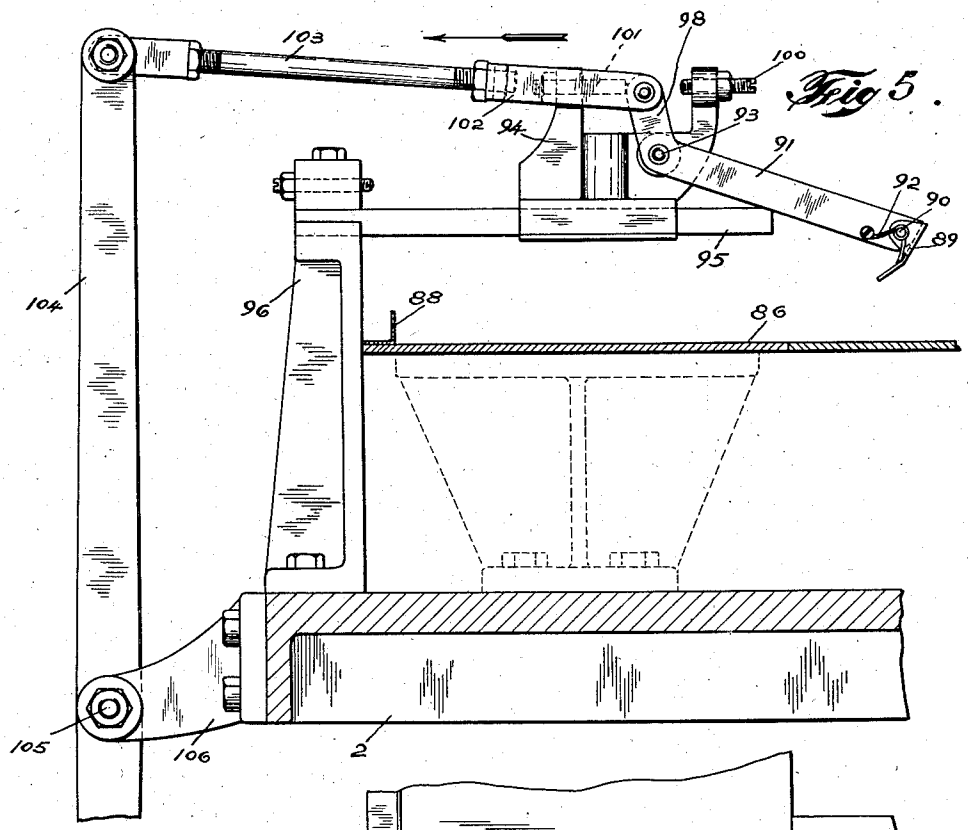


Fig. 5.

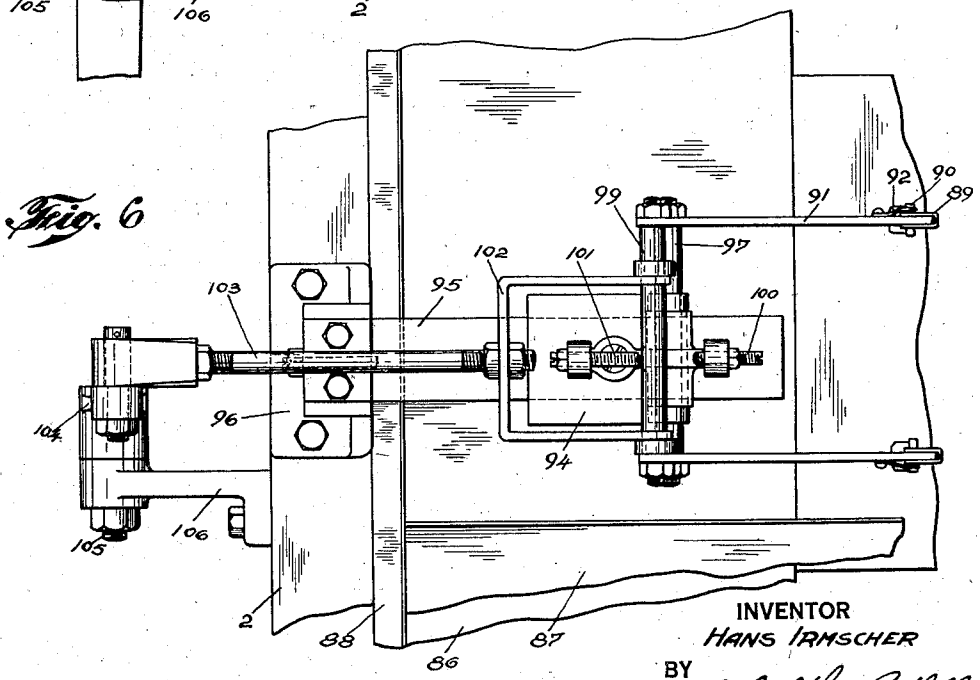


Fig. 6

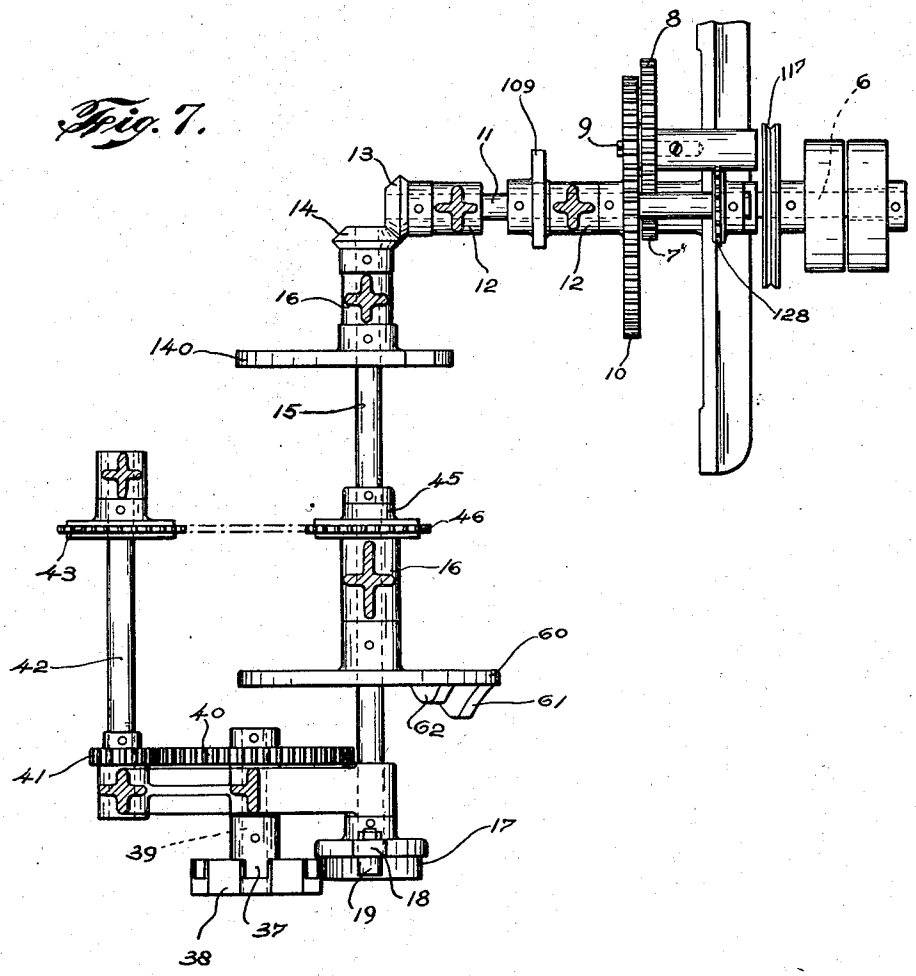
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BAG FORMING MACHINE

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Fig. 7.



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Patented Jan. 7, 1936 2,027,172

UNITED STATES PATENT OFFICE

2,027,172

BAG FORMING MACHINE

Hans Irmscher, New York, N. Y., assignor to Millie Patent Holding Co., Inc., New York, N. Y., a corporation of New York

Application July 6, 1931, Serial No. 548,971

2 Claims. (Cl. 271—54)

This invention is concerned with bag forming machines in which a continuous tube of suitable material is formed into a plurality of bags, the operations comprising the cutting of the tube into a plurality of suitable lengths, sewing one of the opening ends of the portions so cut out by a continuous sewing operation and severing the thread connecting the several bags as a result of the continuous sewing operation.

The invention is particularly concerned with mechanism by which the cut lengths of material are advanced into the sewing mechanism.

In the drawings—

Figure 1 is a plan view, showing a machine embodying the present invention, the mechanism being illustrated as operating upon a gauze material such as might be desirable in the manufacturing of tea bags.

Figure 2 is a view in end elevation, showing the machine of Figure 1.

Figure 3 is a view in side elevation, showing the machine of Figure 1.

Figure 4 is a segmental view in section, taken on line 4—4 of Figure 1, and looking in the direction of the arrows, this view showing the fingers for advancing successively cut lengths of material into the sewing machine.

Figure 5 is a view similar to Figure 4, showing the fingers in their return movement after having advanced a unit into the sewing machine.

Figure 6 is a plan view, showing the advancing mechanism in the position shown in Figure 5.

Figure 7 is a detail view, partly in section, showing the driving mechanism for actuating various elements mentioned hereinafter.

Referring to the above drawings, the frame of the machine constructed in accordance with the present invention is shown at 1, being provided with a suitable table 2 and a supporting arm or arms 3. A discharge chute 4 is adapted to direct the finished article into a suitable receptacle and a longitudinal frame member 5 is provided upon which a driving power shaft 6 is provided for receiving idle and driving pulleys indicated at 7. These pulleys may be supplied with power in any desired fashion and afford a convenient means of controlling the mechanism, inasmuch as a belt or other device may be conveniently shifted from the idle to the driving pulley and vice versa to control the operation of the machine.

Power is supplied from the shaft 6 to a driving gear 7' which engages an idler gear 8 to which a pinion 9 is secured. Pinion 9 engages with a large driven gear 10 which is secured to a shaft 11, shaft 11 being mounted in journals 12 upon the frame of the machine. Shaft 11 drives a bevel gear 13 which meshes with a cooperating bevel 14 for driving a power shaft 15. Power shaft 15 is journaled upon the frame of the machine by means of bearing 16 and drives a wheel 17 which is formed with an arm 18 upon which a roller 19 is journaled. The foregoing elements will be more readily understood from an inspection of Figure 7.

As previously stated, the material to be worked is preferably formed as a continuous sleeve in a roll journaled upon the arm 3. From this arm, the material is threaded under a guide rod 20 (Figure 1) and between guide collars 21. The guide collars 21 are preferably secured upon a cross rod 22 and are carried between spaced arms 23 mounted upon the cutter carriage 24. The material is then passed over the cutter bed and between upper cylindrical rollers 26 and a lower cylindrical roller. The upper rollers 26 are journaled upon a shaft 28 which is mounted between arms 29 which are formed upon a sleeve 30. Sleeve 30 is journaled upon the cutter carriage 24 by means of a rod 31 and is formed with a bracket 32 upon which a spring arm 33 is secured. The spring arm is preferably formed with bifurcated portions forming spring fingers 34, these spring fingers being adapted to engage the material over the rod 22.

Coil springs 35 normally urge the rollers 26 into engagement with the lower roller and thus elevate the fingers 34 from engagement with the material over the roller 21. The rollers 26 are preferably rubber covered to afford suitable friction for controlling more effectively the movement of the material between the rollers and the feeding thereof to the cutting mechanism.

The cutting operation, with which the present invention is concerned, leaves upon a table 86 (Figures 1, 5, 6 and 7), a length of material. The position of the material upon the table 86 is limited by means of an end stop plate 87 and a side stop plate 88. The material from the table 86 is next advanced in a direction at right angles to the direction of its movement through the cutting mechanism (Figures 1, 4, 5 and 6). This motion is imparted to the material by means of presser feet 89 which are pivoted at 90 upon arms 91. Springs 92 normally urge the feet 89 into a position at right angles with respect to the arms 91, as shown in Figures 4 and 5. Arms 91 are pivoted at 93 upon a slide member 94 which moves upon a guide 95 which is secured to a bracket 96 on the bed of the machine, the guide 95 extending in a direction perpendicular to the

direction of movement of the material through the cutting mechanism. As above stated, the arms 91 are journaled at 93 upon a transverse shaft 97, carried by the slide 94. Arms 91 are formed with extensions 98 between which a shaft 99 is secured. In this fashion, simultaneous movement of the arms is effected, such movement being limited by means of stops 100 and 101, carried by the slide 94.

Bifurcated member 102 is secured to a link 103 and at its end journaled upon the shaft 99 to effect the actuation of the slide 94 and the arms 91. Link 103 is pivoted to an end of a lever 104 which is pivoted at 105 upon a bracket 106, carried by the bed of the machine. A coil spring 107, connected at one end to the lower extremity of lever 104 and at its other end to a bracket 108 upon the frame of the machine, normally urges the slide 94 into the position shown in Figure 4. Movements of the material to be sewed at right angles to the direction of movement previously described is effected by means of a cam 109 which is secured to shaft 11 and engages a roller 110 which is journaled upon an arm 111, pivoted upon a bracket 112. A link 113 connects the arm 111 with the lower extremity of lever 104 and thus motion of the cam 109 is transmitted to the slide 94.

The initial movement of the lever 104 causes the shaft 99 to be moved into engagement with the stop 100 and subsequently to advance the slide 94 in the direction of the arrow in Figure 4. During this movement the presser feet 89 engage the material and move it under a feed belt 114 that it may subsequently advance through the sewing machine (Figures 1 and 2). Reverse movement of the lever 104 moves the shaft 99 into engagement with the stop 101 elevating the presser feet as shown in Figure 5, and subsequently moving the slide 94 in the direction of the arrow of Figure 5. In this fashion, the movement of the presser feet may be synchronized with the cutting mechanism to remove a cut piece of material from the table 86 after each cutting operation and advance the same to the sewing machine.

A sewing machine is shown at 115 and is driven by means of a belt 116 from a pulley 117 carried by the power shaft 6. Thread for the sewing machine may be provided by spools carried upon a suitable spool assembly 118 which is mounted upon a standard 119. A suitable cutting mechanism 120 is preferably provided to cut the side of the bag to be sewed just prior to the sewing operation in order that the sewing may be effected, accurately, upon the cut edge thereof.

The power mechanism for operating the foregoing elements is of suitable form to afford the desired power take-offs which are synchronized in order that each operation may follow the previous operation in any desired sequence. The resulting operation therefor provides for the formation of bags which are closed along three edges and open along a fourth edge to permit the filling thereof and the bag thus formed is automatically fashioned from a continuous tube or sleeve of suitable material. Each operation is coordinated with the other operations in such fashion as to take place fully and effectively. By providing a movable carriage for the cutting mechanism which cuts the material into a plurality of suitable lengths, variation of cams, one of which is shown at 54 to vary the length of material may be accommodated, thus providing effectively for varying the length of the bags without altering the operation of the mechanism or its efficiency.

The mechanism for feeding the material to the first cutting mechanism is, in effect, a metering mechanism and measures a desired length of material to be introduced into the first cutting mechanism. The material is effectively cut by the operation of a movable knife in conjunction with suitable pressure members which hold the material in cutting position upon opposite sides of the movable knife.

The cutting of the threads following the sewing of the bag is effected in such fashion as to permit the continuous movement of the bags from the sewing machine to the discharge chute and thus the continuous operation of the sewing machine is not disturbed.

While the invention has been described with specific reference to the accompanying drawings, it is not to be limited, save as defined in the appended claims.

I claim as my invention:

1. In combination with a table for receiving articles to be moved in a desired direction, a member mounted upon the table to slide in the said desired direction, spaced arms pivoted intermediate their ends upon the member, spring pressed feet pivoted on the arms at one end thereof, a rod connecting the other ends of the arms, reciprocating power means connected to the rod, and spaced stops on the slidable member to limit movement of the rod with respect thereto.

2. In combination with a table for receiving articles to be moved in a desired direction, a member mounted upon the table to slide in the said desired direction, spaced arms pivoted intermediate their ends upon the member, spring pressed feet pivoted on the arms at one end thereof, a rod connecting the other ends of the arms, reciprocating power means connected to the rod, means to urge the arms normally to a non-engaging and elevated position, means to actuate the power means to move the arms to an engaging position and advance them over the table, and spaced stops on the slidable member to limit movement of the rod with respect thereto.

HANS IRMSCHER.