

A. M. BATES.
BAG FASTENING DEVICE.
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1,062,948.

Patented May 27, 1913.

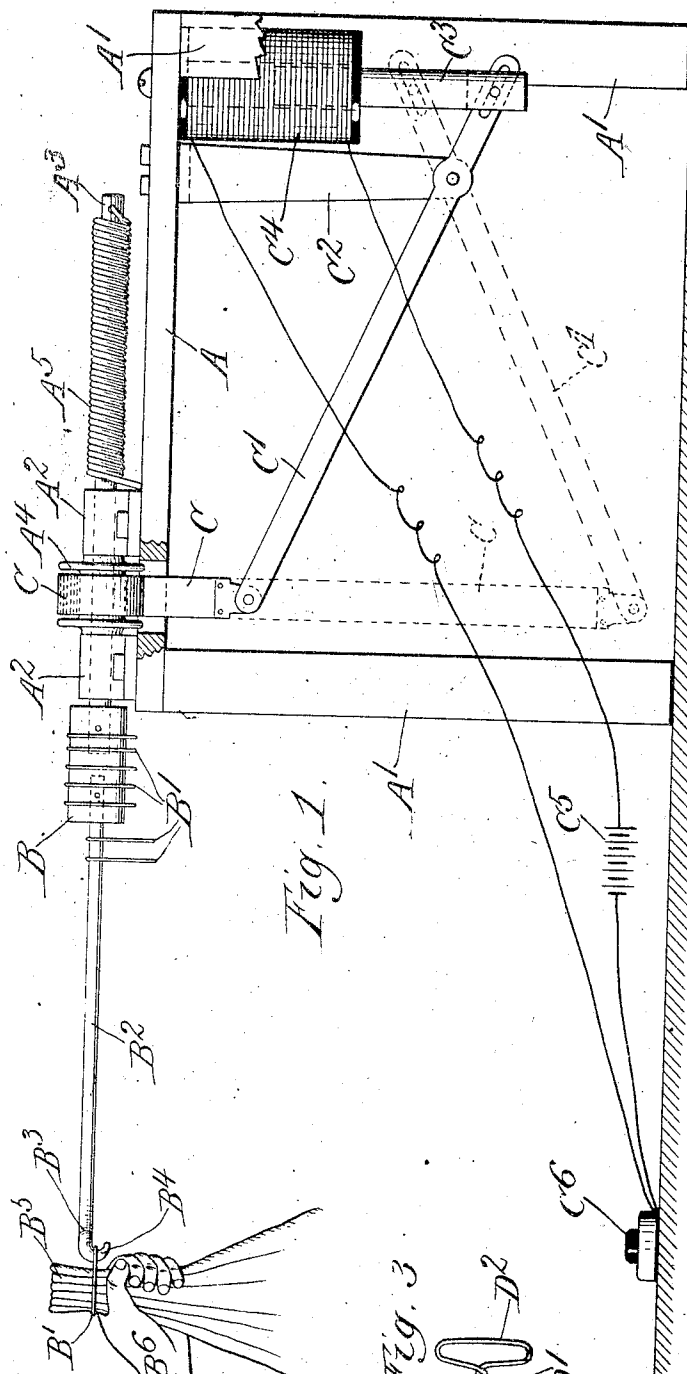


Fig. 1.

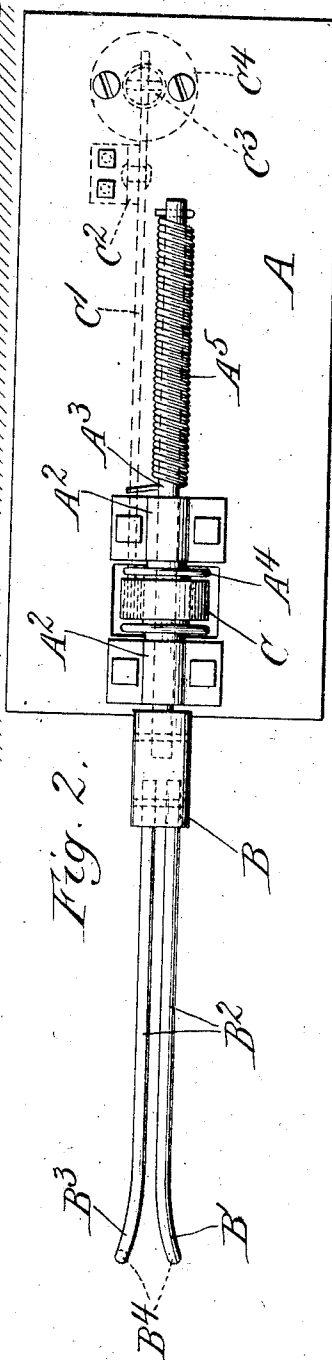


Fig. 2.

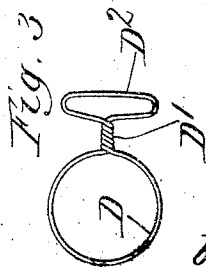


Fig. 3.

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BAG-FASTENING DEVICE.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ADELMER M. BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bag-Fastening Devices, of which the following is a specification.

My invention relates to improvements in bag tying machines and is illustrated in one form in the accompanying drawings, wherein—

Figure 1 is a side elevation with parts removed; Fig. 2 is a plan view; and Fig. 3, a plan of the bag tie.

Like parts are indicated by like letters throughout the several figures.

The table A is mounted upon the supports A¹ and carries the bearings A² in which rotates the shaft A³ carrying between the bearings, the pulley A⁴ and being surrounded at one end by the spring A⁵ which is fixed to one end of the shaft and at the other end to the table A. The mandrel B which is carried upon the shaft A³ and projects beyond the surface of the table A, carries loosely about it the bag tying rings B¹ and has embedded therein the inner ends of the two parallel spring rods B². The outer ends of the spring bag supporting and twisting rods B² are provided with the divergent extensions B³ which terminate in the downwardly extending hooks B⁴. The bag B⁵ is shown held by the hand B⁶ of the operator and in engagement at its top with one of the rings B which is held upon the hooks B⁴. The belt C is wound at one end about the pulley A⁴ and in engagement at its other end with the lever C¹ which is pivotally mounted upon the lug C² on the bottom of the table A and which carries at its other end the plunger C³ in engagement with the solenoid C⁴ operated by the battery C⁵ whose circuit is closed by means of the push button C⁶.

In Fig. 3 I have shown a plan view of the bag tie as it appears when it has been tightened about the neck of the bag. The circular loop D engages the top of the bag, and is connected by means of the twisted portion D¹ with the elliptical loop or key D² which is formed by the hooks B⁴ and may be used to untwist the loop to release the bag.

I have shown in my drawings an operative device, still it will be evident that many changes might be made in the size, shape

and arrangement of the parts without departing materially from the spirit of my invention, and I wish, therefore, that my drawings be regarded as in a sense diagrammatic.

The use and operation of my invention are as follows:—The top of the bag to be tied is slipped between the parallel spring rods so that the bag is supported thereby and a portion of the bag projects above them. The operator then gathers the bag together in his hand, still retaining it between these rods, thus folding the top of the bag. One of the rings is then drawn off the mandrel and slipped over the top of the bag and the bag is withdrawn from between the spring rods, the ring being drawn with it until it is engaged by the hooks at the ends of the rods. The operator then presses a button which excites the solenoid, which solenoid operates a lever to unwind the belt from about the shaft on which the mandrel is mounted, thus rotating the shaft and thereby twisting the wire ring and causing it to grip the top of the bag. The ring is then disengaged from the rods and the spring on the shaft returns the mandrel to its original position thereby winding the belt on the pulley. It will be observed that the outer hook carrying ends of the rods are divergent and the rods themselves are elastic. This arrangement provides for any local change in conditions attending the bags to be tied. For instance, if the fabric of one bag is thicker than another, it will be evident that it will require a longer ring to surround it and this increase in length must be taken away from the twisted portion. This will result in drawing the spring rods more closely together as the ring is wound up and decreasing the size of the elliptical loop or key. At any rate, the elasticity of these rods provide a means for holding the wire ring, which means will always remain in contact with it but are adapted to give before the ring breaks, thus preventing a rupture in the ring either in the key engaged by the hooks or in the loop engaging the bag. In actual practice the result of this elastic or flexible arrangement is that the tie as shown in Fig. 3; twists in both directions from the center and the holding loop is constricted by the reduction in the cross sectional area of the bag engaging circle and the two rods are caused to slightly approach by the increasing tension in the key

member. The flexibility of the rods thus operates to prevent parts breaking of the portion of the wire which forms the key since the tendency of each of the loops to decrease equally as they are twisted would create too great a strain in the key loop if it were held on rigid holding bars. The flexibility of the fingers takes up this decrease in size and prevents breakage.

10 I claim:—

A bag tying device comprising a rotatable mandrel, means responsive to the will of the operator for rotating said mandrel in or direction and automatic means for sub-

sequently returning it to its original position, and a pair of parallel spring arms projecting outwardly from the end of said mandrel substantially in line with the axis thereof, said arms terminating in outwardly bent hook members, said arms being rigidly attached at their other ends to said mandrel, the space between said arms being free at all points between the hooks and the mandrel. 15 20

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