W. ROSE.

MECHANISM FOR FOLDING AND CLOSING THE ENDS OF BAGS OR WRAPPERS.

APPLICATION FILED MAR. 8, 1916.

1,275,756.

Patented Aug. 13, 1918.

6 SHEETS—SHEET 1.

Fig. 1.

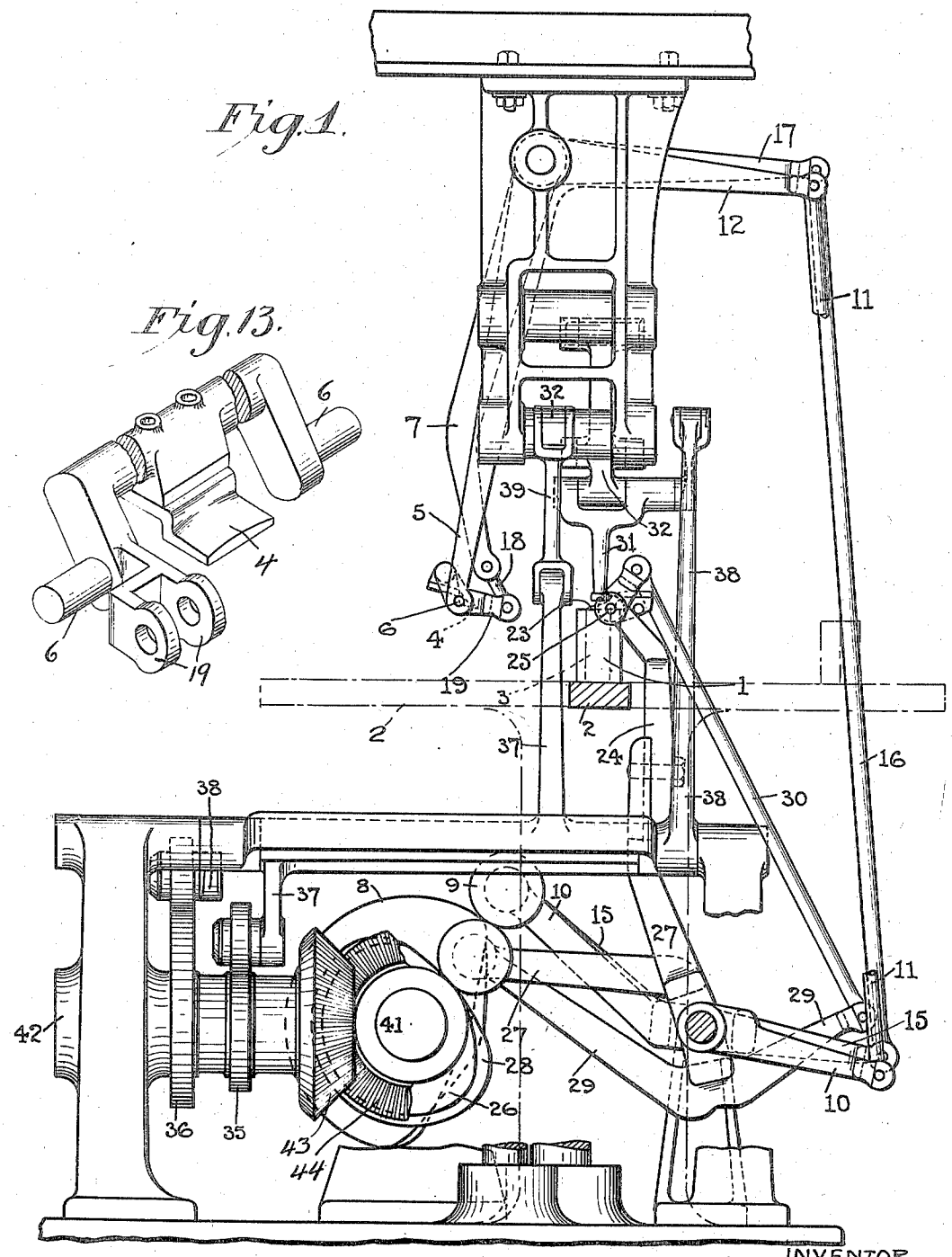


Fig. 13.

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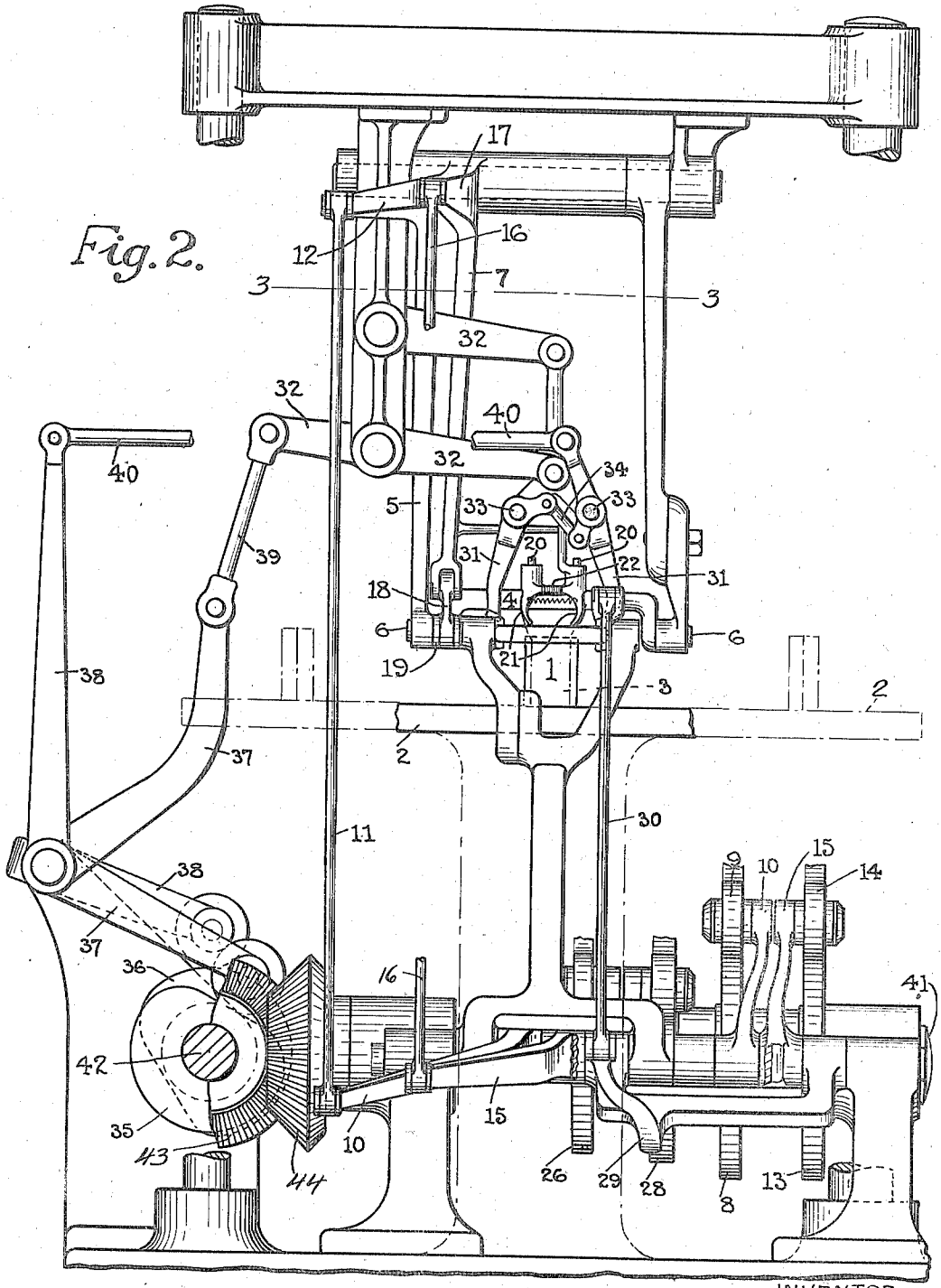
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6 SHEETS—SHEET 2.

Fig. 2.



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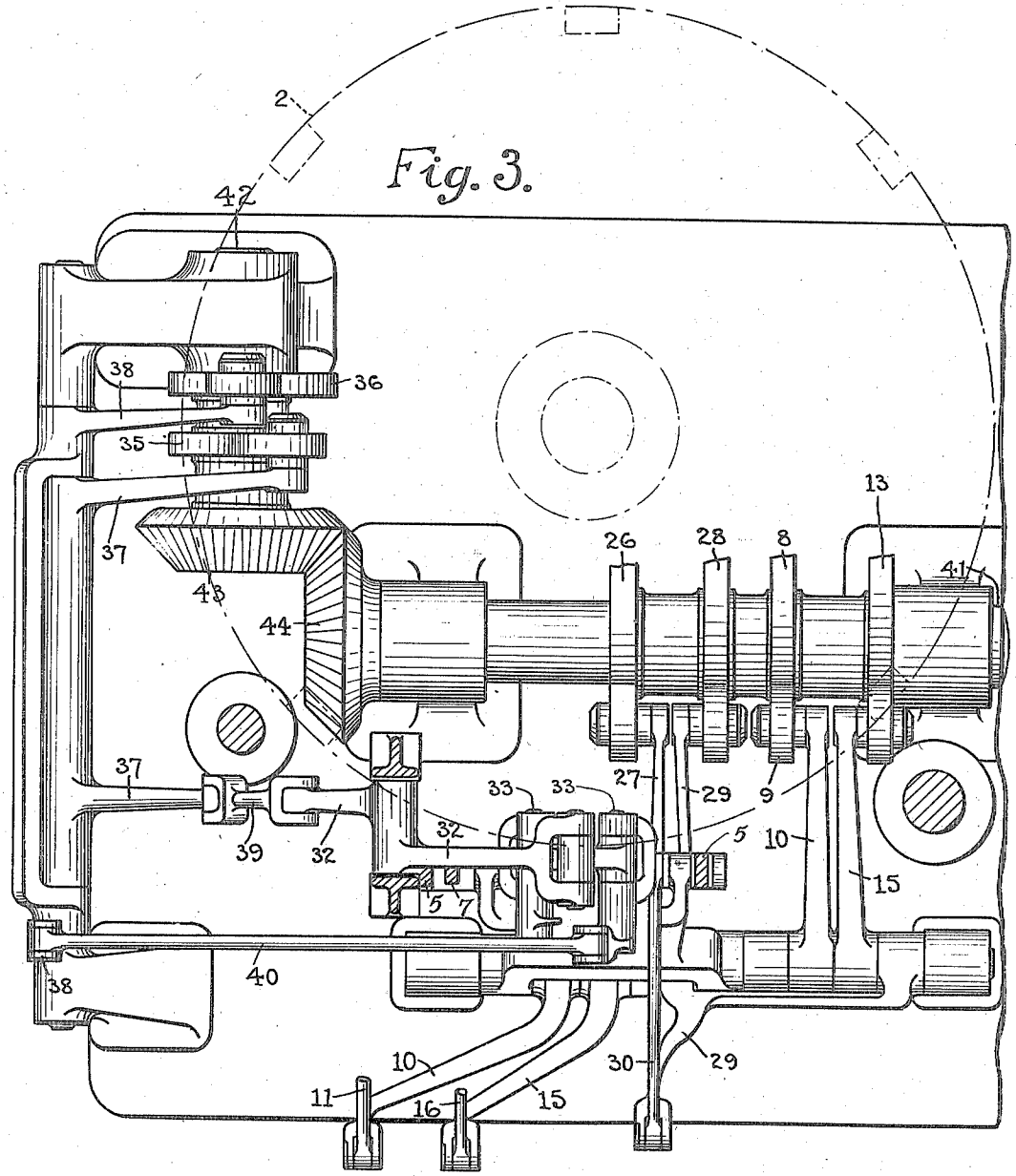
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6 SHEETS—SHEET 3.

Fig. 3.



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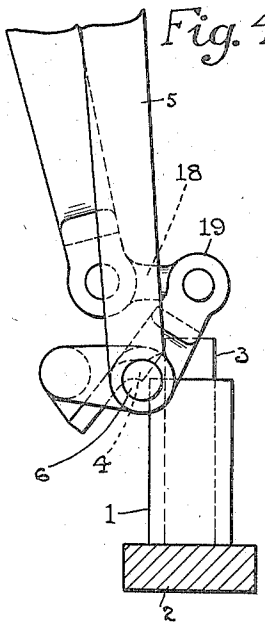
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6 SHEETS—SHEET 4.

Fig. 4.



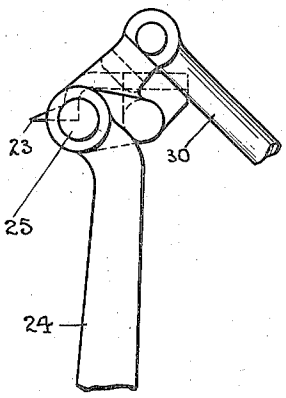


Fig. 5.

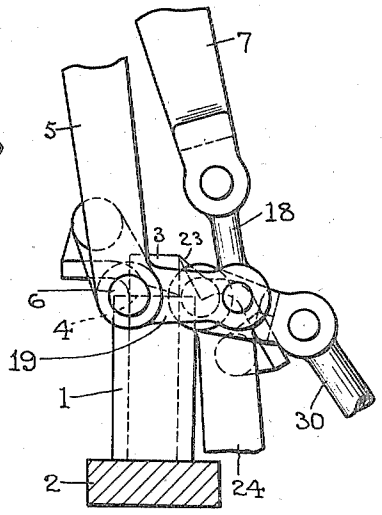
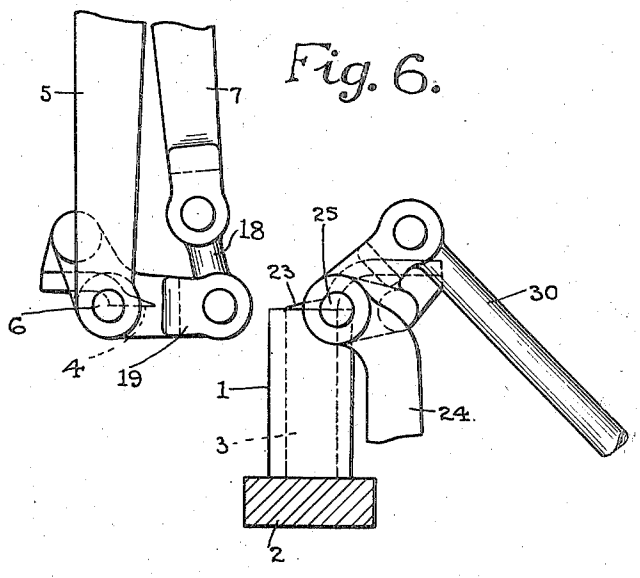


Fig. 6.



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6 SHEETS—SHEET 5.

Fig. 7.

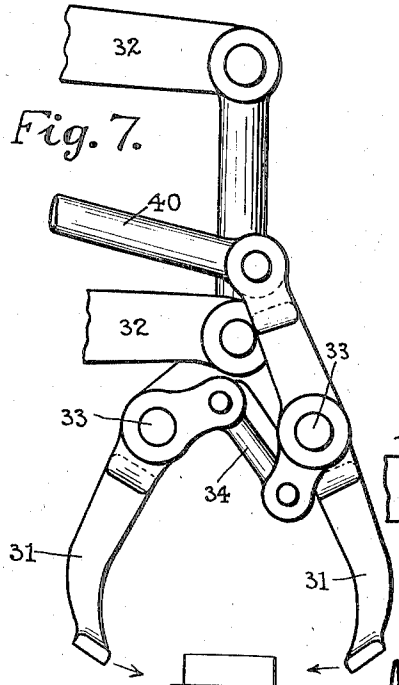


Fig. 8.

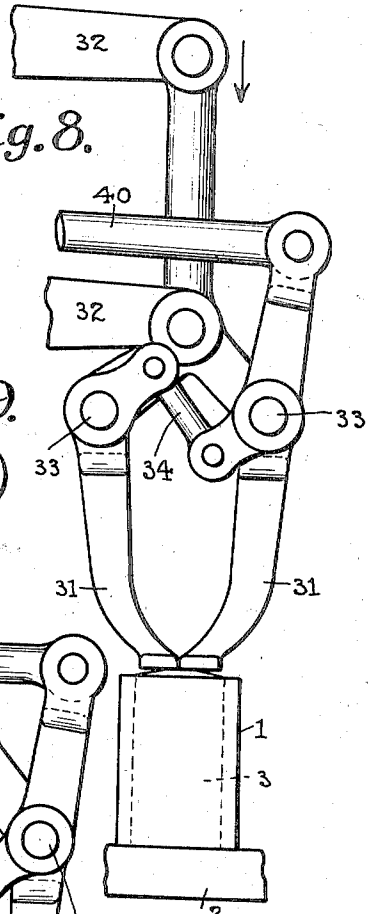
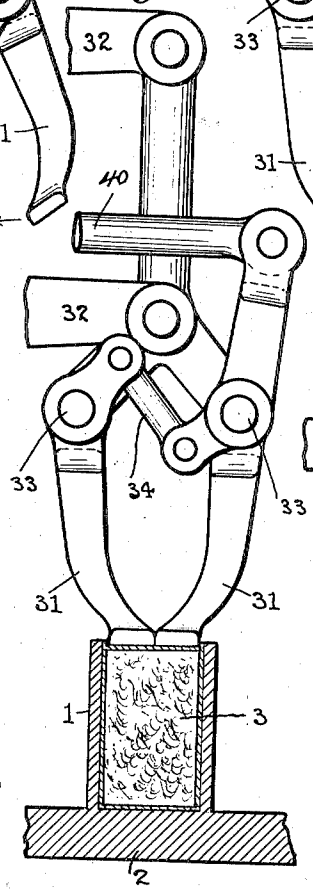


Fig. 9.



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6 SHEETS—SHEET 6.

Fig. 10.

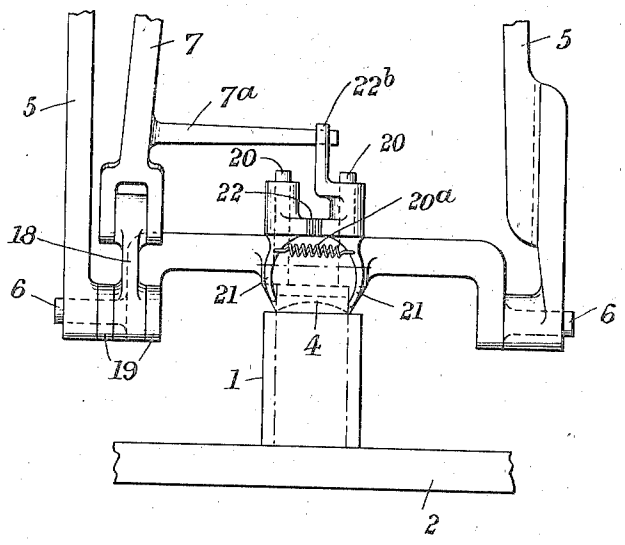


Fig. 11.

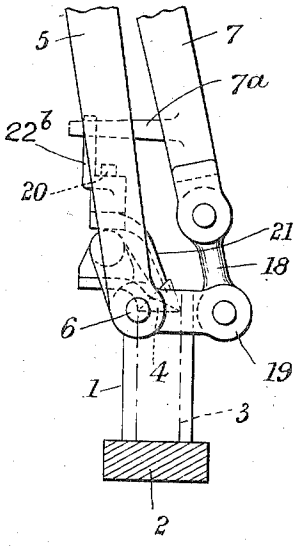
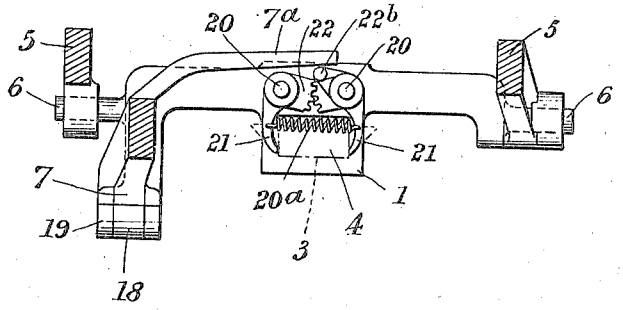


Fig. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM ROSE, OF GAINSBOROUGH, ENGLAND.

MECHANISM FOR FOLDING AND CLOSING THE ENDS OF BAGS OR WRAPPERS.

1,275,756. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed March 8, 1916. Serial No. 82,992.

To all whom it may concern:

Be it known that I, WILLIAM ROSE, a subject of the King of Great Britain, residing at Allron Works, Gainsborough, in the county of Lincoln, England, have invented new and useful improvements in mechanism for folding and closing the ends of bags or wrappers, more especially intended for closing the ends of bags after they have been charged with tea, cocoa, tobacco, or other material, of which the following is a specification.

The object of this invention is to provide improved mechanism for folding the ends of bags, or wrappers, and more especially the ends of bags after they have been charged, and in describing this invention we will presume that it is employed for that purpose. The bags may be charged by hand, or by machinery, and be held in boxes, or receptacles, carried by a wheel to which intermittent movements can be given to bring the boxes, or receptacles, into the different positions required to operate upon the bags. The order in which the folds are made we will presume to be, first on one side, and then on the opposite side, so that two triangular, or nearly triangular, portions are left which are afterward folded onto the preceding folds, although, if desired, the folds may be made in other order, for instance, first on one side and then on the two sides which are at right angles to the first side, and then the fold on the side opposite to the first side, the folders forming the last fold, or folds, not only folding but, by further movement, also pressing and indenting the folded end somewhat inward and properly completing all the creases of the folds on the said end and rendering them not liable, or less liable, to spring open, this pressing of the folded end being done while the bag is in the same position as that in which the folding is done, so that, by arrangements in accordance with this invention, the complete folding and the pressing of the creases are done while the bag, or package, is in one position, and there is no necessity for a device to keep the folds down while the packet moves into another position for pressing the creases. This invention is not limited to employment in any one particular type of packeting machine and can be used with machines having the boxes, or receptacles, moving in a straight line, or in a circular path, or it can be used with a stationary box, or receptacle, in which the charged bags to be folded can be placed by hand, or by any suitable mechanism.

In describing this invention I will refer to the accompanying drawings in which Figures 1 and 2 illustrate in elevations, at right angles to each other, and Fig. 3 in plan, mechanism constructed in accordance therewith. Figs. 4, 5 and 6, are elevations (drawn to a larger scale than to which Figs. 1, 2 and 3 are drawn) showing the first and second folders in different positions and Figs. 7, 8 and 9 are similar elevations showing the last folders in different positions. Figs. 10, 11 and 12 are elevations at right angles to each other and a plan of certain details as hereinafter explained. Fig. 13 is an enlarged detail of the folding blade 4.

The movements of the various folders will take place in an order the same as that in which the folds are made so that it will only be necessary for me to describe one order of folding; namely, that in which the second fold is made at the side opposite the first fold and the remaining triangular folds are afterward simultaneously made. Boxes, or receptacles, 1, carried by an intermittently rotatable wheel 2, are charged with bags 3 (which may contain the material being packeted, or be unfolded bags on formers) the bags being successively brought into position to be operated upon. The blade 4, which forms the first fold is carried and operated by swinging arms 5, the blade being cranked and having, at each end, a pin 6, mounted in bearings in the swinging arms 5, the center of which is in the same plane as that in which will be the upper end of the packet when folded. The said blade 4, is caused to approach the bag 3, in an elevated position and is, by a swinging arm 7, turned down on its center 6, and forms the first fold. The arms 5, are at the proper time caused to swing by a cam 8, which, through an antifriction roller 9, actuates a bell-crank lever 10, connected by a rod 11, to an arm 12, secured to, or formed in one with, the said arms 5; and the arm 7, is caused to swing by a cam 13, actuating, through an antifriction roller 14, a bell-crank lever 15, connected by a rod 16, to an arm 17, secured to, or formed in one with, the said arm 7. Movement can be transmitted from the swinging arm 7, to the folding blade 4, to turn it on its pivot pins 6, by a link 18, connected to an extension 19, on the said blade

4. Attached to the blade 4, are pins 20, on which are mounted fingers 21, which are caused to operate together, for example by interengaging segmental racks 22, actuated in one direction against the action of a spring 20^a by a projection 7^a from one of the aforesaid swinging arms 7, engaging a crank arm 22^b secured to one of the pins 20 so that the said fingers open outward the upstanding end of the bag 3, to allow the second folder 23, to operate analogously to the first folder, and also to insure the crease in the last folds being properly made. The second folder 23, may be carried on a rocking arm 24, by a pin 25, caused, by a suitable cam 26, and bell-crank lever 27, to approach the upstanding end of the package 3, and then, by a suitable cam 28, bell-crank lever 29, and link 30, to make a sufficient turn on its pin 25, to fold over the second fold. The remaining folds are then made by folders 31, suspended on arms 32, and pivoted on pins 33, and jointed, or geared, together, for example connected by links 34, and operated by cams 35, 36, arms 37, 38, and links 39, 40, so as to turn down the last folds and press them to prevent reopening; the folders 31, are preferably a little less in area than the end of the packet so that they by further movement are caused to descend the requisite distance to form an indentation at the end of the bag and make the folded end more secure.

The cams 8, 26 and 28, are secured to a shaft 41, and the cams 35 and 36, are secured to a countershaft 42, these shafts being preferably provided with toothed wheels 43 and 44, through which rotary motion is transmitted from one shaft to the other. Any suitable means may be provided for driving one of the said shafts from a source of motive power.

It is to be understood that the invention is not limited to the precise details of construction hereinbefore described and illustrated in the accompanying drawings as it will be evident that modifications can be made without departing from the nature of the invention.

What I claim is:—

1. In folding and closing mechanism of the type described, a swinging arm, a movable folder carried thereby, a coöperating swinging arm, an operative connection between the latter and the folder for turning the latter down, and cams operating on said arms to first bring the folder up to its work and then turn it down, together with pins carried by said folder, fingers carried by said pins for temporarily engaging the work, and means for causing said fingers to move apart to open out the work, preparatory to the operation of a succeeding folder.

2. In folding and closing mechanism of the type described, a series of folders for operating on the work while the latter is in stationary position, certain of the last operating folders having together a less area than the end of the packet and means for causing the same to press the work, after the folding movement is completed, to indent the end of the packet and thus make the folded end more secure.

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

WILLIAM ROSE.

Witnesses:

ALBERT E. T. JOURDAIN,

E. O. GEORGE.