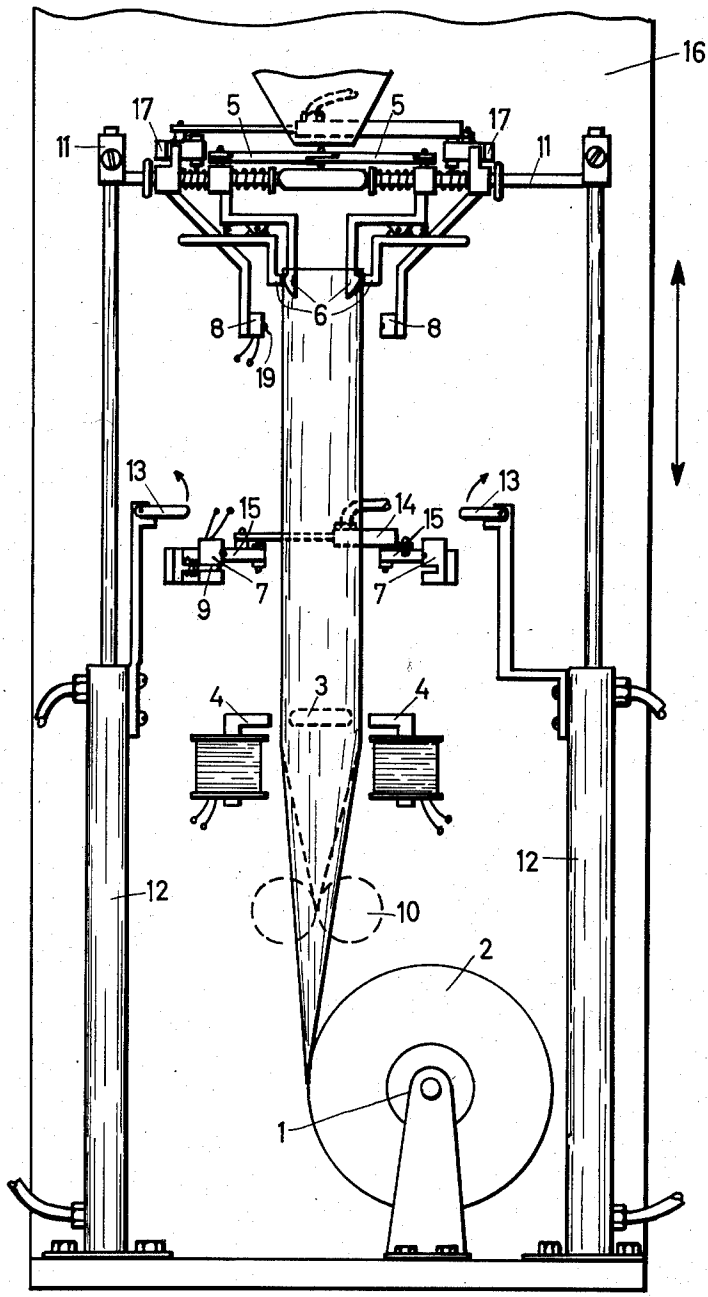
Aug. 19, 1958 H. WANG 2,847,806

PACKING MACHINES

Filed June 5, 1956 2 Sheets-Sheet 1

Fig.1



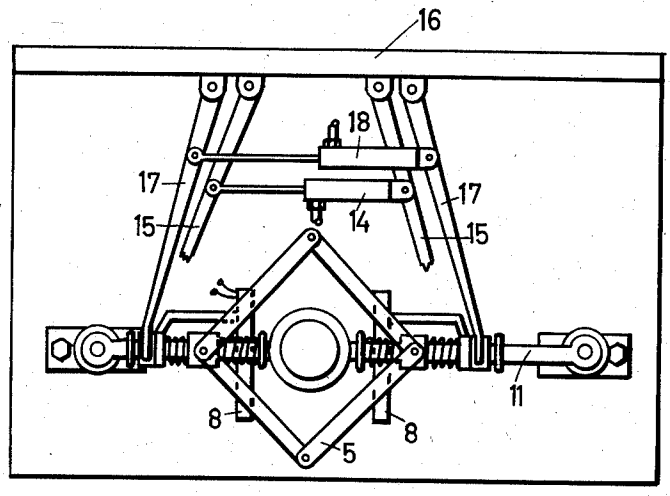
INVENTOR.
Herman Wang
BY
Pennie, Edmonds, Morton, Barrows and Taylor
Attorneys

Aug. 19, 1958 H. WANG 2,847,806

PACKING MACHINES

Filed June 5, 1956 2 Sheets-Sheet 2

Fig.2



INVENTOR.
Herman Wang
BY
Pennie, Edmonds, Morton, Barrows and Taylor
Attorneys

United States Patent Office 2,847,806
Patented Aug. 19, 1958

2,847,806

PACKING MACHINES

Herman Wang, Oslo, Norway

Application June 5, 1956, Serial No. 589,400
Claims priority, application Norway June 16, 1955
4 Claims. (Cl. 53—29)

The present invention relates to packing machines in which a flattened tubular bag material of paper or plastic foils is fed to a filling station, the object being that the bag foil for forming the bag shall be enabled to open, be closed at its lower end, filled with the material to be packed, closed at its upper end and finally cut off at the lower end below the closing fold.

The problem with a machine operating according to this method is to open the bag foil and keep it open during the feed and the working steps above mentioned.

The invention has for its object a favorable solution of this problem.

Accordingly the invention comprises improvements in a packing machine of the kind described in which the bag foil is fed from a supply roll along a feed path to a filling station, at least two electro-magnets in association with the feed path of the bag foil, the poles of which face each other on opposite sides of the feed path at a distance adjusted according to the diameter of the bag foil, the said magnets being adapted to produce a magnetic field through a ring of magnetic responsive material located within the said bag foil, the said ring being thereby kept floating within the bag foil which is held open, means for gripping the edge of the bag foil above the magnets and pulling the bag foil up to a desired length, means for sealing a bottom in the bag foil above the magnets, means for cutting the bag foil off between the said sealing means and the magnets, and means for sealing the top of the bag after being filled.

In a suitable embodiment the magnets are electro-magnets, the poles of which face each other on opposite sides of the feed path of the tubular bag foil in a distance from each other adjusted according to the diameter or width of the bag foil and adapted to produce an alternating magnetic field for alternatingly to attract and repel the ring located in the bag foil.

For feeding the tubular bag foil a travelling holder movable along the path of the bag foil is provided, having members adapted to grip the tubular foil and keep this in open condition, the said holder being collapsable at a right angle to the bag foil, so that after the filling of the bag the latter is closed until the upper end of the bag has been sealed.

The invention is illustrated in the drawing, in which:

Fig. 1 is a front view of a packing machine including elements arranged according to the invention, and

Fig. 2 is a plan view of the machine shown in Fig. 1.

In Fig. 1, **1** designates a roll on which the bag foil **2** is wound in the shape of a flattened tubular foil of waxed paper, waxed paste board or plastic (synthetic resin material).

The bag foil is threaded over an iron ring **3**. **4** denotes electro-magnets, the poles of which face each other on opposite sides of the feed path of the bag foil in level with the iron ring **3** and are adapted to produce an alternating field for alternatingly to attract and repel, i. e. vibrate the iron ring **3** so that the latter is kept floating.

The foil or bag material is pulled somewhat higher than the iron ring **3**, and then a holder **5** which is mounted on a traveling carriage **11**, and is provided with two gripping clips **6**, is moved by means of hydraulic cylinders **12**, down to the iron ring, the clips **6** by means of pivoted arms **13** being caused to grip the foil above the iron ring and under control of the cylinders **12** caused to pull the bag foil up to the desired height corresponding to the bag length. When the carriage **11** has reached its upper position, arms **15** pivoted on the back stand **16** of the machine are moved together by means of a hydraulic cylinder **14** thereby pressing together welding dies **7**, one of which is provided with a groove in which an electrically heated resistance wire is mounted, whereby the bottom of the bag is formed. A further movement on the arm **15** causes a cutting device **9** to cut the bag off below the bottom seal. Material to be filled into the bag is supplied from the feed hopper, as shown, to the bag through the opening in the holder **5**, which has the shape of a square as shown in Fig. 2 and is composed of four parts which are joined together by means of bolts. The holder **5** is caused to collapse by means of arms **17** pivoted on the back stand **16** and controlled by a hydraulic cylinder **18**, so that the foil is pressed flat. A further movement of the arms **17** causes the welding dies **8**, one of which is provided with a groove in which an electrically heated resistance wire is mounted, to be pressed together, whereby the top of the bag is closed. The clips **6** release the filled and sealed bag which is gripped, ejected or removed by means of a conveyer belt.

The process is repeated continuously, the carriage or holder **5** being again moved down and the clips gripping the foil which is cut off in a suitable height above the iron ring.

When using a rigid foil, for example consisting of waxed paste board, the carriage **5** may be replaced by a set of rollers **10**, indicated with dotted lines. In this case the rollers **10** push the foil over the iron ring **3** to the adjusted height.

Iron rings of different sizes will be required for different diameters or widths of foil. The distance between the electro-magnets **4** may naturally be adjusted in accordance with the diameter of the bag foil.

In the grip holder shown in Fig. 2 the rails or side members of the holder are linked together at all four corners, so that the holder may be collapsed in the way above described. The distance between the side members of the holder may be changed by providing the side members with holes as indicated, so that the bolts can be removed and the distance thereby changed. When the bag is filled, the holder **5** may as already mentioned, be collapsed so that the bag is held tightly together while the closing is effected.

It will be understood that when in the preceding description or in the claims reference is made to foils of paper or plastic, this comprises waxed paper or paste board, plastic or other material which can be welded or sealed for closing the bag at the top and at the bottom. It will further be understood that the bag may have any desired and suitable cross-section.

What I claim is:

1. A packing machine comprising means for feeding a flattened tubular foil from a supply roll along a feed path to a filling station, at least two electro-magnets in association with the feed path of the bag foil, the poles of which face each other on opposite sides of the feed path at a distance adjusted according to the diameter of the bag foil, a ring of magnetic responsive material in the bag foil between the magnets, the said magnets being adapted to produce a magnetic field through the ring of magnetic responsive material located within the

said bag foil, the said ring being thereby kept floating within the bag foil which is held open, means for gripping the edge of the bag foil above the magnets and for pulling the bag foil up to a desired length, means for sealing a bottom in the bag foil above the magnets, means for cutting the bag foil off between the said sealing means and the magnets, and means for sealing the top of the bag after being filled.

2. A packing machine as set forth in claim 1, wherein the means for pulling the bag foil to the desired length, comprises a traveling holder which is movable along the path of the bag foil, the said holder being provided with gripping members adapted to grip the upper edge of the bag foil and keep the same in open condition, the said holder being collapsible at a right angle to the bag foil feed path in order to close the bag after filling until the upper end of the bag has been sealed.

3. A packing machine as set forth in claim 1, wherein the electro-magnets are supplied with alternating current to produce an alternating field for alternatingly attracting and repelling the said ring located within the said bag foil.

4. A method of producing a bag from a continuous tubular bag foil, comprising feeding the said bag foil from a supply roll over a ring of magnetic responsive material located interiorly of the bag foil, producing a magnetic field through the said ring by means of at least two electro-magnets, the poles of which face each other on opposite sides of the ring, so as to keep the ring floating within the bag foil to hold the same open, pulling the bag foil up to a desired length, sealing a bottom in the bag above the magnets and cutting the bag foil off between the sealing point and the magnets, filling the bag, sealing the top of the bag and releasing the same.

References Cited in the file of this patent

UNITED STATES PATENTS

1,588,647	Bates	June 15, 1926
2,600,254	Lysobey	June 10, 1952

FOREIGN PATENTS

686,952	Germany	Jan. 19, 1940