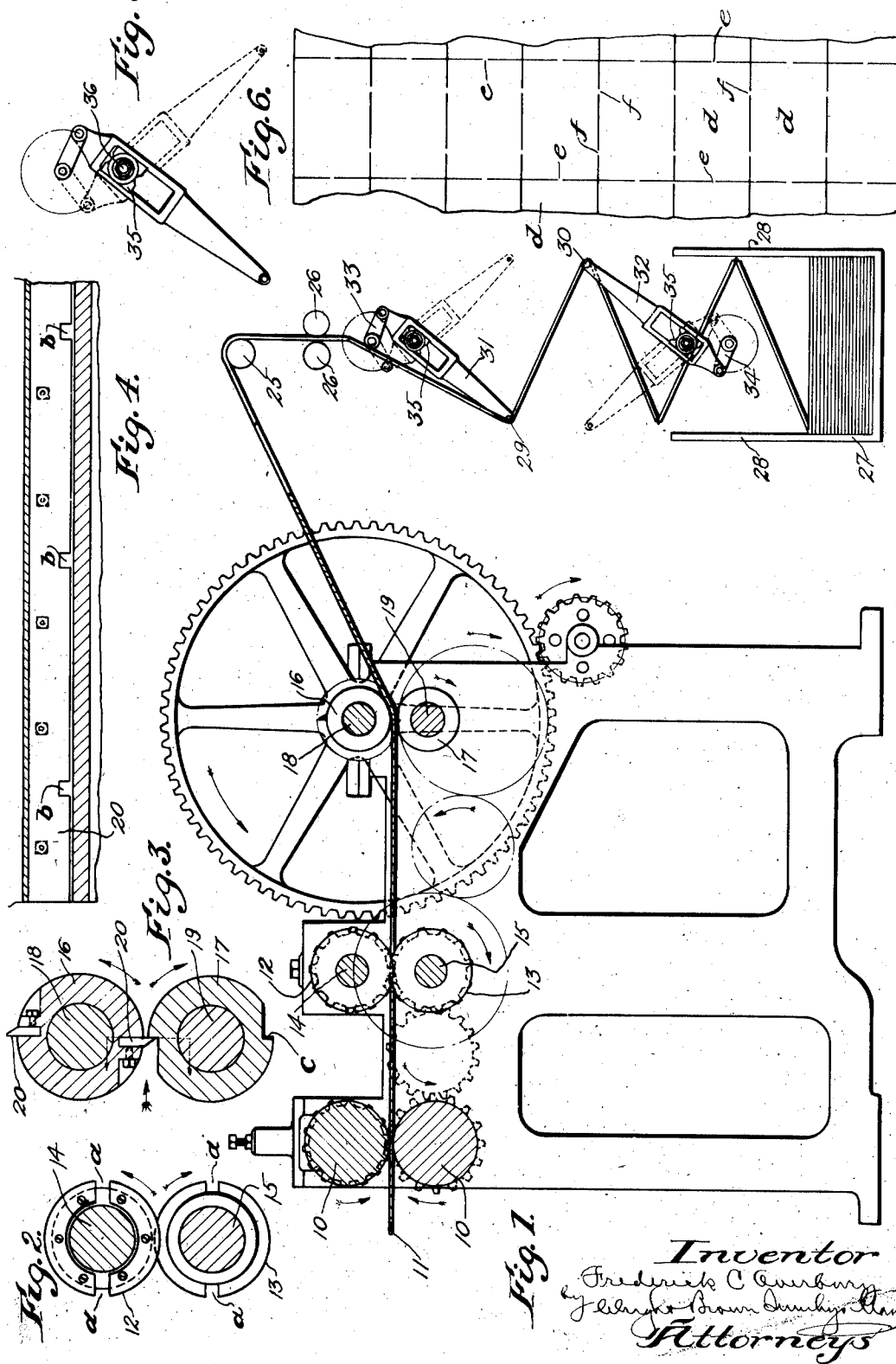


F. C. OVERBURY.
 APPARATUS AND METHOD OF MAKING AND PACKAGING ROOFING UNITS.
 APPLICATION FILED APR. 19, 1919.

1,365,947.

Patented Jan. 18, 1921.



Inventor
 Frederick C Overbury
Attorneys

UNITED STATES PATENT OFFICE.

FREDERICK C. OVERBURY, OF HILLSDALE, NEW JERSEY, ASSIGNOR TO THE FLINT-KOTE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

APPARATUS AND METHOD OF MAKING AND PACKAGING ROOFING UNITS.

1,365,947.

Specification of Letters Patent.

Patented Jan. 18, 1921.

Application filed April 19, 1919. Serial No. 291,399.

To all whom it may concern:

Be it known that I, FREDERICK C. OVERBURY, a citizen of the United States, residing at Hillsdale, in the county of Bergen and State of New Jersey, have invented new and useful Improvements in Apparatus and Methods of Making and Packaging Roofing Units, of which the following is a specification.

In the manufacture of prepared roofing shingles or other units, it has heretofore been customary, after forming the asphalt-impregnated sheet, with its coating of higher-melting-point asphalt and its exposed layer of partially embedded grit or crushed mineral material, to slit the sheet longitudinally and to chop it transversely, so as to provide separate shingles or units of the proper length and width. The shingle-forming machine functions at relatively high speed, and heretofore a number of operators have been required to pile the shingles by hand into stacks containing a predetermined number of units, previous to the stacks being bound or otherwise packaged for shipment.

In accordance with the present invention, instead of cutting the sheet into detached and separate shingles, I cut the sheet by interrupted cuts both lengthwise and crosswise, so as to form the shingles and yet leave them all attached together by narrow webs, so that they may be subsequently separated or detached from each other. As the sheet thus cut leaves the machine, it is then folded back and forth by suitable instrumentalities so that it is formed into a flat package or packet. If the transverse connecting webs are sufficiently narrow, the bending of the sheet at the lines of severance at the ends of the shingles effectively separates the shingles by breaking the webs. If desired, the slitting cutters, instead of leaving narrow webs connecting the sides of the shingles, may cut the sheet longitudinally into strips, so that in the packet, resulting from the folding operation, the shingles will be laterally disconnected.

On the accompanying drawing,—

Figure 1 represents more or less conventionally an apparatus embodying my improvements for carrying out my new process.

Fig. 2 represents a pair of the interrupted slitting cutters.

Figs. 3 and 4 represent the interrupted cutters for cutting the sheet transversely.

Fig. 5 illustrates one of the folding devices.

Fig. 6 illustrates a portion of the sheet before it is folded.

It is of course obvious that any suitable form of cutting machine may be employed which is provided with cutting instrumentalities so formed as to leave the shingles attached end to end (and, if desired, attached side to side) by narrow webs which will permit the shingles to be pulled apart without difficulty. As shown, the machine is provided with a pair of feed rolls 10, 10, for feeding the sheet 11. The slitting cutters are indicated at 12, 13, and may be of any suitable construction to form either continuous or interrupted cuts as may be desired. As shown they are notched at *a a* so as to form interrupted cuts or slits, and they are located on cross shafts 14, 15. As many pairs of cutters may be employed as may be required by the width of the sheet and the desired width of the shingles. At 16, 17, are the cutters which form the transverse interrupted cuts or slots, and they are mounted on the shafts 18, 19. As more or less conventionally shown, the cutter 16 has axially extending blades 20, 20, which are notched at *b b*, and which cooperate with shear edges *c* on the cutter 17. The notches *b* in the blade are preferably so related or positioned in relation to the longitudinally slitting cutters that the webs which connect the ends of the shingles are located between the side edges thereof, thereby leaving sharply cut corners on the shingles. When the longitudinally slitting cutters are so formed as to make interrupted slits in the sheet, the latter, as it emerges from the transversely slitting cutters, presents the appearance shown in Fig. 6, in which the partially formed shingles *d* are connected lengthwise by the narrow webs *e*, and are connected sidewise or transversely by the narrow webs *f*.

As the sheet (or longitudinally slit portions thereof) leaves the machine, it is caused to be folded back and forth, the lines of the folds registering with the trans-

verse interrupted cuts or lines of severance to form a flat package or packet. Any suitable instrumentalities may be employed for this purpose. As shown, the sheet passes 5 over a guide roll 25, and between guide rolls 26, 26, to a suitable receptacle indicated at 27, there being upright guides 28, 28, for guiding the material to the latter. The sheet is engaged by rods 29, 30, which are 10 movable in opposite directions, and which fold it back and forth. As shown, these rods are mounted in the ends of oscillatory and sliding arms 31, 32, which are connected to crank arms 33, 34. Each arm 31 or 32 15 has a longitudinal slot or guideway to receive a block 35 swiveled on a stationary pivot 36. By any suitable power connections (not shown) the crank arms are oscillated and so timed with reference to the 20 machine that the rods engage the sheet at the transverse interrupted cuts, and give to the sheets the zig-zag or folded formation as shown. The guides 28 insure the passage of the folded portions into the receptacle, 25 where they lie flat. The final flattening of the shingles causes the breaking of the longitudinal webs *e* so that the shingles are separated at their ends from each other. The packet finally consists of shingles (or 30 strips of laterally attached shingles) which are arranged with the mineral surfaced

faces alternating up and down. As each receptacle is filled, it is replaced by another, in fact they may be mounted on an endless 35 conveyer which is intermittently moved.

Obviously, instead of cutting the sheet into shingles which are attached longitudinally of the sheet by narrow webs, the sheet may be cut into any other units, so attached, such as shingle strips the longitudinal edge 40 of each of which is provided with notches so as to provide shingle-like tabs or projections. In fact, it makes no difference what particular form each unit takes so long as it is attached to the preceding and next suc- 45 ceeding units by one or more narrow webs which will permit the units to be folded back and forth on their lines of severance.

What I claim is:

A method of making and packaging roofing 50 shingles, which consists in cutting the sheet of roofing material transversely by interrupted cuts or lines of severance, leaving the shingles connected at their ends by narrow webs, then folding the sheet back and 55 forth to cause the shingles to lie one above the other in a flat package, and breaking said webs to separate the ends of the shingles from each other.

In testimony whereof I have affixed my 60 signature.

FREDERICK C. OVERBURY.