To all whom it may concern:

Be it known that I, CHARLES E. MARTIN, a citizen of the United States of America, residing at Mansfield, in the county of Rich-land and State of Ohio, have invented certain new and useful Improvements in Roofs for Silos or the Like, of which the following is a specification.

My invention relates to roofs for silos or the like.

The objects of my invention are to provide means of constructing a roof of tapered corrugated sections of sheet metal; to provide means of locking all but one of the sections together, leaving a space to be covered by a single section without interlocking; to provide a ventilator body with an outwardly extending inclined flange to fit the outer surface of the roof or small ends of the tapered sections; to provide a sleeve having an outwardly inclined flange to conform with the inner surface of the roof on small ends of the tapered sections, and means whereby the flanged portions of the sleeve and ventilator can be drawn tightly together with the small ends of the corrugated tapered sections interposed therebetween and rigidly held together. I obtain these and other objects by the mechanism illustrated in the accompanying drawings in which:

Figure 1 shows a cross sectional side elevation of the roof, part of the silo, and the ventilator. Fig. 2 shows an enlarged cross-sectional side elevation of the ventilator and method of attaching it to the vertex of the roof. Fig. 3 shows a side elevation of the silo with my roof applied thereto showing a single tapered section attached to a ring and movably mounted upon the ventilator and adapted to bridge the space between the interlocked sections. Fig. 4 shows enlarged views of several tapered sections showing the method of interlocking them. Fig. 5 shows an enlarged view of the movable ring and one tapered section which is pivotally attached to the ring and adapted to bridge the space left open by interlocked sections. Fig. 6 is an enlarged view of part of two tapered sections showing the method of interlocking them.

In the drawings, reference numeral 1 represents a silo or the like which can be made of any form desired. Upright supports 2 are attached to the inner periphery of the silo by screws 2' or any other well known fastening means, and the free ends are bent to conform to the angle of the roof that it is desired to make and are attached to the under surface of the roof by the rivets a. A series of corrugated tapered sections 3 are provided to form the roof and locked or united together to form a conical shape as shown. In order to securely interlock these tapered sections together, the end 4 of one section is bent up at an angle as shown in Fig. 6, and the adjoining edge of the opposite tapered section is bent to form a closed loop and bent in the opposite direction to form an open loop as shown at 5 and 6 forming a space 7 into which the end 4 is inserted as shown in Fig. 4 and then forced up until it is made flush with its companion sections. It will be observed that the edge 8 of the looped slat is also turned at an angle which coincides with the angle of the end 4 of the opposite slat. This method of interlocking the tapered corrugated sections of the roof together provides an efficient means of uniting the sections together and effectually prevents rain or the like from working its way into the silo without the necessity of soldering the sections together. In order to further secure the sections together, a through-going bolt 9 is fitted to apertures 10 formed in the adjoining sections and the nut 11 threadably engages the bolt 9 and when tightened serves as additional fastening means. It will be observed that each slat is provided on one edge with a bent end as shown at 4 and its opposite edge folded or looped twice to form the space 7 for the engagement of the end 4. All of the tapered sections are interlocked in this manner to form the conical shaped roof 12 as shown except an mening 13, equal the dimensions of one section, is left. A ventilator 14 having a flanged portion 15 is provided to fit over and extend downwardly upon the outer surface of the small ends of the tapered sections. A sleeve 16 having a flange 17 is inserted within the inner periphery of the ventilator and forced downwardly until the tapered flange 17 of the sleeve contacts with the inner surface of the small ends of the tapered sections leaving the ends of said sections interposed between the flange 15 of the ventilator and the flange 17 of the sleeve. Shaped brackets 18 are rigidly fastened to the sleeve by rivets 19, the heads of which are flush with
the outer periphery thereof to permit adjustment of the sleeve within the inner periphery of the ventilator for clamping purposes. Standards 20 are attached to the inner periphery of the ventilator by rivets 21 and the lower ends of the standards 20 are bent L shape to align with the ends of the brackets 18 and both have alined apertures into which a through-going bolt 22 is inserted which a nut 23 threadably engages and when tightened draws the sleeve 16 in an upward direction in contact with the inner surface of the roof, securely clamping together the interposed small ends of the tapered sections which form the roof. The standards 20 support a hood 24 which is fastened to the standards by rivets 25.

In order to complete the roof and cover up the opening 13, I provide a ring 26 having a bifurcated portion 27 and pivotally attach a tapered corrugated section 28 thereto. The pivoted connection permits the tapered section 28 to be raised from the position shown in Fig. 3 and the movable ring permits the tapered section to be moved laterally until it is directly over the opening 13, overlapping the edges 29 and 30 of the interlocked corrugated tapered sections and thereby covering the opening 13. In order to hold the single section 28 securely in place, a bolt 31 is provided which passes through apertures in the bifurcated portion 27 of the ring and when drawn up by the nut 31' securely clamps by friction the ring and its attached section to the ventilator.

It will thus be seen that a very efficient roof is obtained and any part can be replaced without affecting any other part of the roof and it can be assembled or taken apart without difficulty. It will further be observed that the roof can be shipped from the factory in a compact form.

What I claim is:

1. In a roof for silos and the like, a series of tapered sections longitudinally corrugated, one side of each section being bent over upon itself to form a closed loop and being further bent to form an open loop that underlies the closed loop, said side of said section being extended beyond the outer side of the closed loop and being bent upwardly to engage the adjacent side of the adjacent section, said adjacent side of the adjacent section projecting in the open loop, the looped and the extended portion of the one sheet forming the two walls of the final corrugation of that edge of the sheet and being engaged by the two walls of the final corrugation at the complemen tal edge of the adjacent section and fastening means passing through said side of the adjacent section and the upwardly bent side portion of the first mentioned section.

2. A roof for silos, comprising a series of corrugated and tapered interlocking sheet metal sections, a sleeve having an outwardly and downwardly extending flange to support the small ends of said sections, a spring clamp carrying a non-interlocking section rotatably mounted on said sleeve so as to permit said non-interlocking section to swing in a lateral direction.

3. A roof for silos, comprising a series of corrugated and tapered interlocking sheet metal sections leaving an opening, a sleeve provided with a flange on its lower portion adapted to support the small ends of said sections, a second sleeve having an outwardly and downwardly extending flange formed on its lower portion and adapted to fit and extend over the small ends of said sections, means to movably connect the sleeves together the second sleeve having an annular groove formed thereon, a spring clamp carrying a non-interlocking section rotatably mounted in said annular groove so as to permit said non-interlocking section to swing over the opening left between said sections and away from said opening as described and set forth.

4. In a self-supporting roof, the combination of a series of interlocking corrugated and tapered sheet metal sections arranged to form a cone shaped roof leaving an opening in the center, a sleeve provided with a flange on its lower portion adapted to support the small ends of the sections, means to fasten said small ends to said sleeve, inwardly projecting brackets secured on the inner periphery of said sleeve, a second sleeve provided with a flange and fitted to extend over the outer periphery of said sections, and means engaging said bracket to draw said sleeves together whereby the interposed small ends of the sections are clamped together, substantially as described and set forth.

5. A roof for silos, comprising a series of interlocking and corrugated tapered sheet metal sections, and one movable section, a sleeve adapted to support the small ends of said sections provided with an annular flange to fit the inner surface of the small ends of the tapered sections, a second sleeve having an outwardly and downwardly extending flange fitted to the outer periphery of said sleeve and adapted to extend over the small ends of said tapered sections leaving the small ends of said sections interposed between the outwardly extending flange of the sleeve and the outwardly extending flange of the second sleeve, and means to connect both sleeves together and bind said small ends of the sections therebetween to form a self-supporting roof.

6. A roof for silos, comprising a series of interlocking and corrugated tapered sheet metal sections, a sleeve adapted to support the small ends of said sections provided with an annular flange to fit the inner surface of the small ends of the tapered sections, a sec-
ond sleeve having an outwardly and downwardly extending flange fitted to the outer periphery of said second sleeve and adapted to extend over the small ends of said tapered sections leaving the small ends of said sections interposed between the outwardly extending flange of the first sleeve and the outwardly extending flange of the second sleeve, means to connect both sleeves together and bind said small ends of the sections therebetween to form a self-supporting roof, and a cap carried by the second sleeve.

7. A roof for silos or the like, comprising a series of interlocking corrugated and tapered sheet metal sections, said interlocking members contacting with and reinforcing each other to and tending to maintain the sections in a cone-shaped relation.

8. A roof for silos or the like, comprising a series of interlocking corrugated and tapered sheet metal sections, said interlocking members reinforcing each other to resist lateral strain, means passing through both interlocking members and to hold the larger ends of the sections in place and means to securely clamp the small ends of the sections.

In testimony whereof I affix my signature in presence of two witnesses.

Witnases:

CHARLES E. MARTIN.

John H. Coss,
R. B. McCorky.