(No Model.) 2 Sheets—Sheet 1.

W. A. LIST.

MACHINE FOR JOINING AND ROLLING SHEETS FOR ROOFING.

No. 480,665. Patented Aug. 9, 1892.

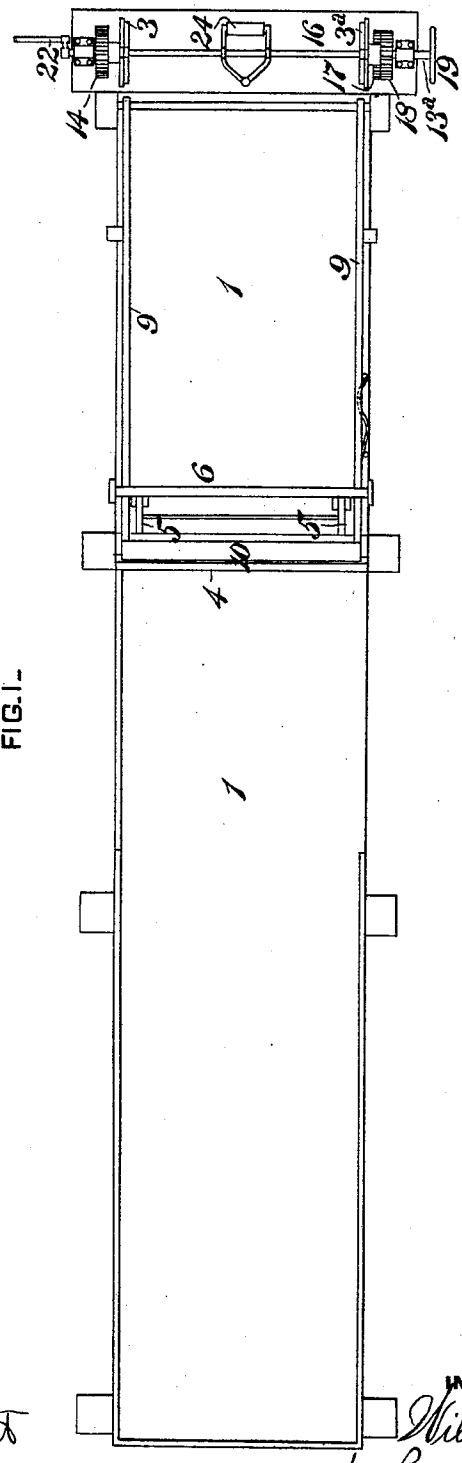

FIG. 1.

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(No Model.) 2 Sheets—Sheet 2.

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No. 480,665. Patented Aug. 9, 1892.

FIG. 2.

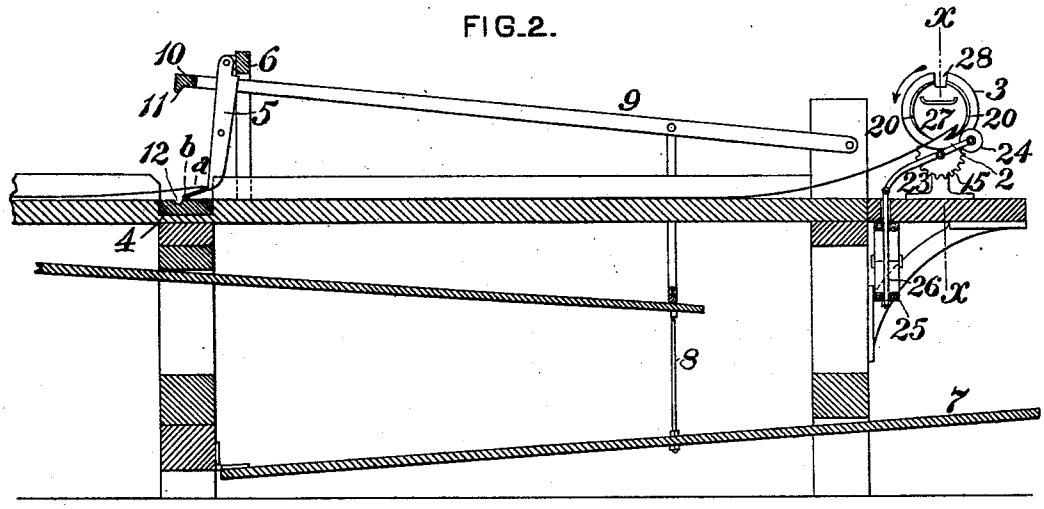
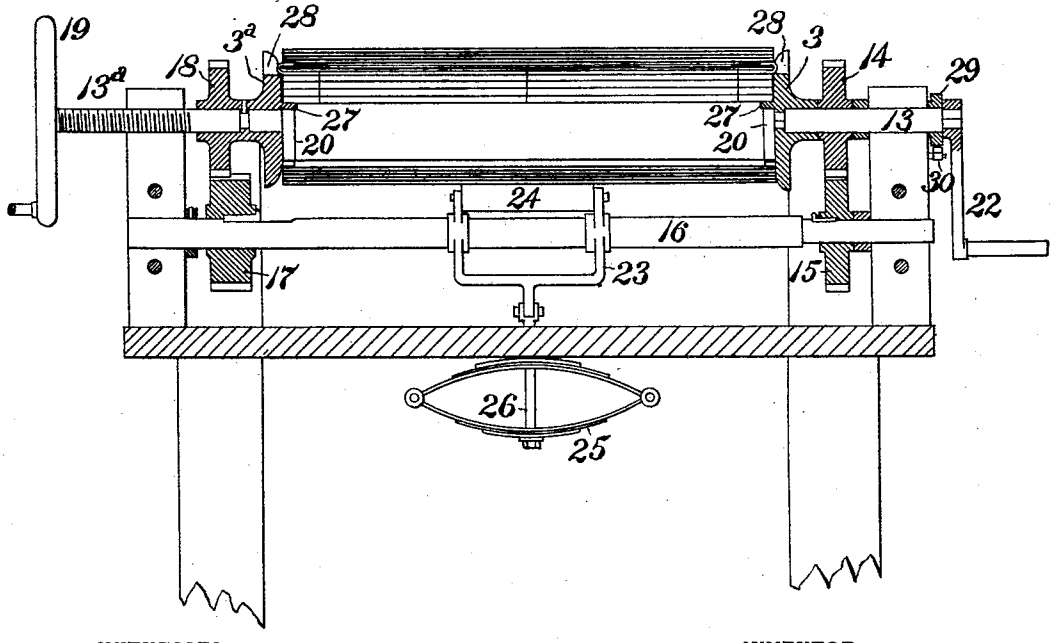


FIG. 3.



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MACHINE FOR JOINING AND ROLLING SHEETS FOR ROOFING.

SPECIFICATION forming part of Letters Patent No. 480,665, dated August 9, 1892.

Application filed August 31, 1891. Serial No. 404,223. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LIST, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented or discovered certain new and useful Improvements in Machines for Joining and Rolling Sheets for Roofing, of which improvements the following is a specification.

The invention described herein relates to certain improvements in machines for uniting sheets of metal and rolling them up into a compact bundle for shipment to the point of use in roofing; and the invention has for its object a construction whereby the sheets may be connected and securely locked end to end, rolled into a compact bundle, inclosing therein suitable fittings employed in applying the metal sheets to the roof, all as hereinafter more fully described and particularly claimed.

In the drawings forming a part of this specification, Figure 1 is a plan view of my improved machine. Fig. 2 is a longitudinal vertical section of a portion of the machine; and Fig. 3 is a transverse section, the plane of section being indicated by the line *x x*, Fig. 2.

My improved machine is provided with a suitable bed-plate of a length somewhat greater than twice the length of the sheets to be united and of a width a little greater than the width of the sheets.

In operating my machine a pile of sheets having at their ends oppositely-turned hooks or poles are piled on the bench 1 at the left-hand end thereof in Fig. 1, and the top sheet is drawn along and its hook caused to engage the hooks 2, formed on the inner faces of the disks 3, as hereinafter fully described. The next sheet is then slipped along the bench and the hook in its front end caused to engage a corresponding hook at the rear end of the first sheet, as shown in Fig. 2. While the sheets are in this condition their united ends will rest upon an anvil 4, inserted in the bed-plate of the machine, as shown in Fig. 2, and the engaging hooks *a* and *b* of the sheets drawn in contact with the stops 5, thereby causing said hooks to firmly engage one another and holding them in such engagement until locked, as hereinafter described. The stops 5 are suspended from a frame 6, secured to the bed of the machine, and are so arranged that the engaging hooks *a* and *b* of the sheets will abut against said stops when the hooks are in proper position on the anvil. The operator now sharply depresses the treadle 7, and through the medium of the rod 8 pulls down the levers 9, which are pivoted to suitable standards of the machine, as shown in Figs. 1 and 2, thereby causing the hammer 10, attached to the free ends of the levers 9, to strike a sharp blow upon the united hooks *a* and *b*, thereby flattening them down against the sheet. At the same time a rib 11 along the edge of the hammer forces the metal of the sheet immediately behind the engaging hooks into a groove 12, formed in the anvil 4, thereby forming a bead in the metal of the second sheet immediately behind the engaging hook, which will prevent any accidental disengagement of said hook. The operator now rotates the disk 4, thereby winding the sheets into a roll, and another operator causes a hook on the front end of a third sheet to engage the hook at the rear end of the second sheet, the operator at the front end of the machine continuing the rotation of the disk until the hooks of the second and third sheets abut against the stop 5, in the manner hereinbefore described, whereupon the hooks of the second and third sheets are flattened and locked in the same manner, as already stated. The hammer is raised and held in an elevated position by a spring 8^a, one end of which is secured to the frame of the machine, while the opposite end engages the rod 8. The disks 3^a are mounted upon short shafts 13 13^a, arranged in suitable bearings on the bed-plate of the machine, as shown in Fig. 3. The disk 3 is secured to the shaft 13 so as to rotate therewith, and on said shaft is also secured a pinion 14, intermeshing with the corresponding pinion 15 on the counter-shaft 16. On the opposite end of the counter-shaft is keyed a broad counterfaced pinion 17, intermeshing with the pinion 18, formed integral with the disk 3^a, which is arranged to rotate loosely on the shaft 13^a and to move longitudinally therewith, as shown in Fig. 3, said shaft being threaded so that it can be moved longitudinally by rotation of the hand-wheel 19 through its threaded bearing. On the inner faces of the disks 3 3^a are circular flanges 20, which form the drums on which the sheets are

wound. These flanges are interrupted at a point 2, forming an opening through which the sheet may be inserted, and on the ends of one of the flanges adjacent to said opening are formed hooks 2, adapted to engage the hooks formed on the end of the sheet, as shown in Fig. 2. After the end of the sheet has been attached to the disks in the manner stated, and as clearly shown in Fig. 2, said disks are rotated in the direction of the arrow in Fig. 2 by means of the handle 22 on the shaft 13, motion being communicated from the shaft 13 to the disk 3^a by the gearing hereinbefore described. On the shaft 16 is loosely mounted a yoke 23, having a roller 24 loosely mounted between the ends thereof and held in contact with the sheets as they are being wound in a roll by a spring 25, connected to the opposite end of the yoke by a rod 26, as shown in Figs. 2 and 3, thereby causing the sheets to be wound in a compact roll. After the desired length of sheet or strip has thus been wound into a roll it is bound in this shape by suitable wires or other ties, and the disk 3^a is then withdrawn from the end of the roll by rotating the hand-wheel 19 and the roll removed.

By the employment of the separable disks 3 3^a with drum-like flanges it is impossible to inclose within the bundle of roofing material folded strips of metal known as "trimmings" and employed in securing the sheet metal to the roof. These trimmings are bound up in a bundle and secured inside of the roll, and in order that this may be effectively done during the rolling up of the sheets ledges 27 are formed on the inner faces of the disks 3 3^a for supporting the ends of the bundles of trimmings while winding the sheets into a roll. It is preferred to make one of the trimmings longer than the others in order that it may be bent over the ends of the sheet when rolled. In order to accommodate the ends of this long strip without interfering with the winding of the sheets, notches 28 are formed in the peripheries of the disks 3 3^a for the reception of the ends of the long strip or trimming during the winding operation. When a certain desired amount of the sheet metal has been wound into a roll, the ends *d* of the long strip or trimming are bent over upon the bundle or roll, as shown in Fig. 3, and these bent-over ends of the trimmings are secured together by wires in order to prevent accidental removal of the bundle of trimmings, and then the remaining part of the sheet metal is rolled up, thereby firmly securing the bundle of trimmings in place.

In order to prevent any reverse movement of the disks during the rolling operation, a ratchet-wheel 29 is secured to the shaft 13, and a pawl 30, adapted to engage therewith, is pivotally attached to the standard-support in said shaft.

It will be observed by reference to Fig. 3 that the portions of the inner faces of the disks 3 3^a outside of the flanges 20 incline outwardly. These inclined faces serve to guide the sheets during the winding operation into proper alignment.

I claim herein as my invention—

1. In a machine for rolling metal sheets for roofing, the combination of independent disks provided with hooks for engaging the end of a strip of metal, means for moving one of said disks toward and from the other, and mechanism for transmitting a rotary movement from one disk to the other, substantially as set forth.

2. In a machine for rolling metal sheets for roofing, the combination of two independent disks revoluble in unison and one movable toward and from the other, a supporting-flange, and a hook for engaging the sheets formed on the inner face of each disk, substantially as set forth.

3. In a machine for rolling metal sheets for roofing, the combination of two independent disks revoluble in unison and one movable toward and from the other, and a spring actuated roller for holding the coils of the sheet-metal strip during the winding operation, substantially as set forth.

4. In a machine for rolling metal sheets, two independent disks revoluble in unison and one movable toward and from the other, and provided with supporting-flanges, and a hook formed on the inner faces of the disks, in combination with ledges for supporting the ends of a bundle of trimmings, the edges of the disks being notched for the reception of the projecting ends of the tie strip or trimming, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM A. LIST.

Witnesses:
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R. H. WHITTLESEY.