

(No Model.)

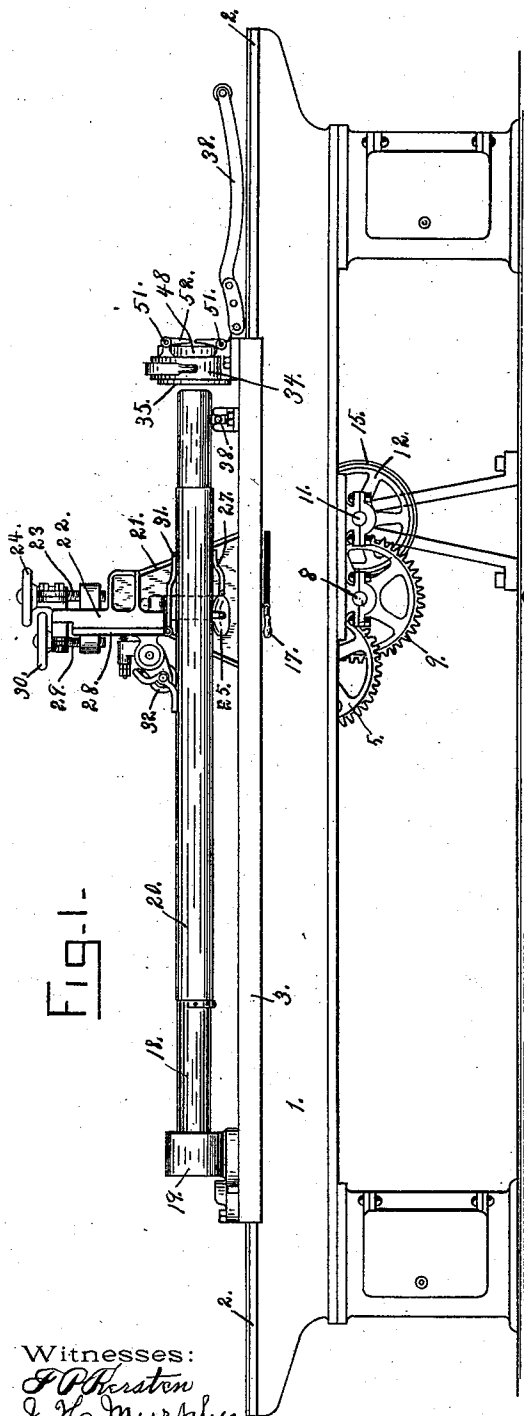
3 Sheets—Sheet 1.

D. H. STOLL.
PIPE CORRUGATING MACHINE.

No. 568,635.

Patented Sept. 29, 1896.

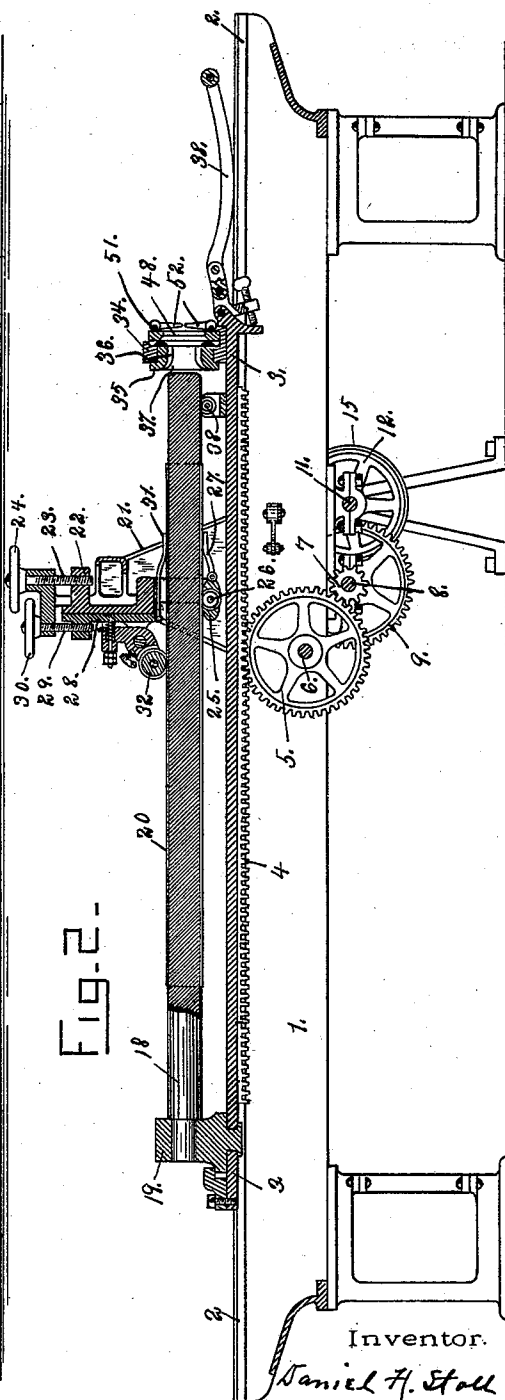
Fig. 1-



Witnesses:

J. P. Herston
J. H. Murphy

Fig. 2-



Inventor.

Daniel H. Stoll

by *W. T. Miller*
Attorney.

(No Model.)

3 Sheets—Sheet 2.

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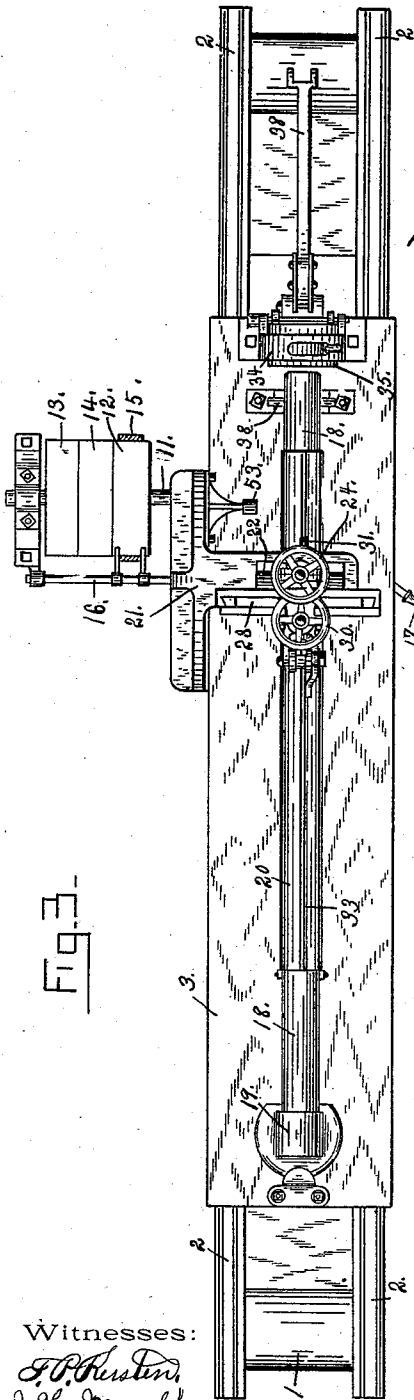


Fig. 3-

Witnesses:

J. P. Huston
J. B. Murphy

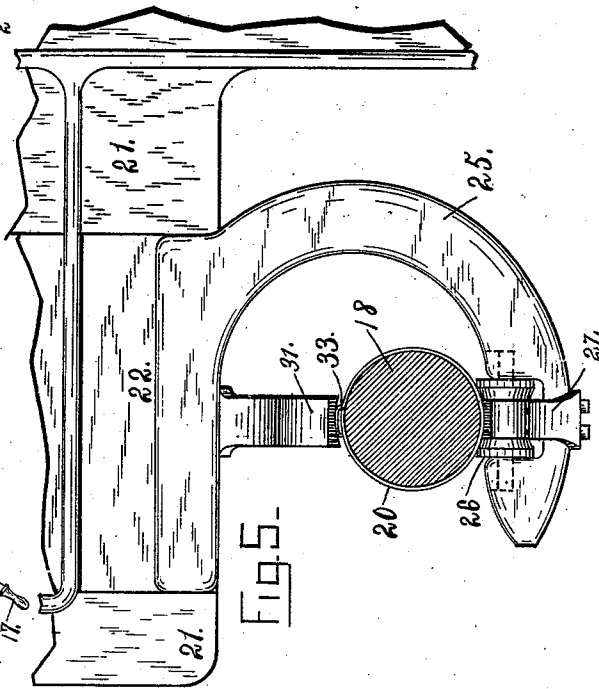


Fig. 5-

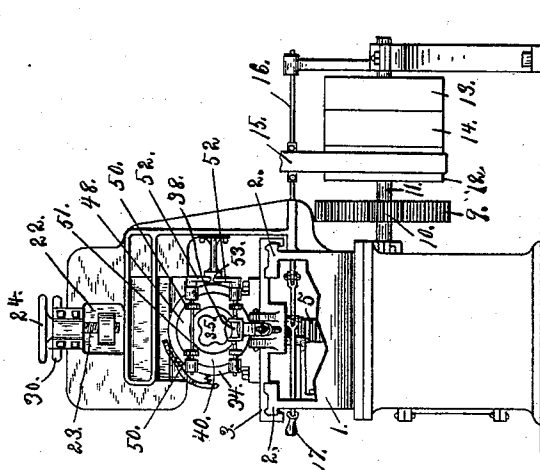


Fig. 4-

Inventor.

Samuel H. Stoll

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(No Model.)

3 Sheets—Sheet 3.

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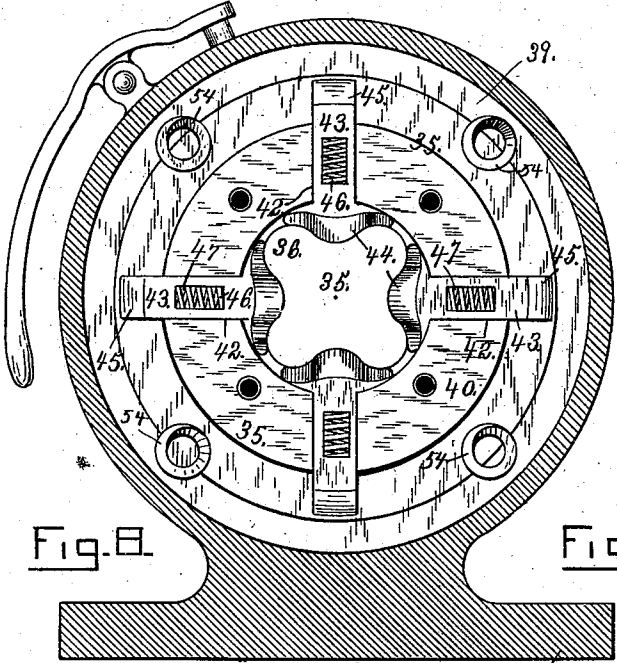


Fig. 8.

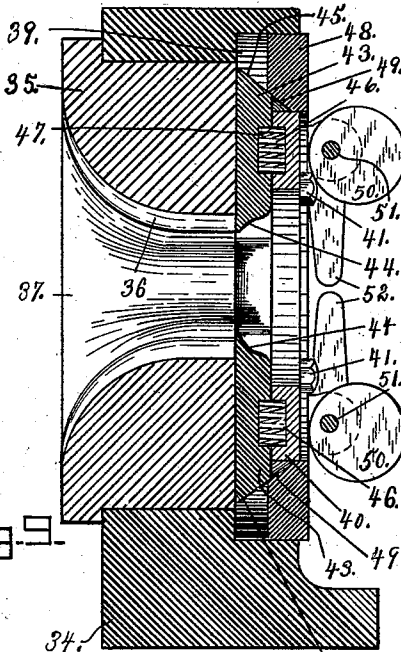


Fig. 9.

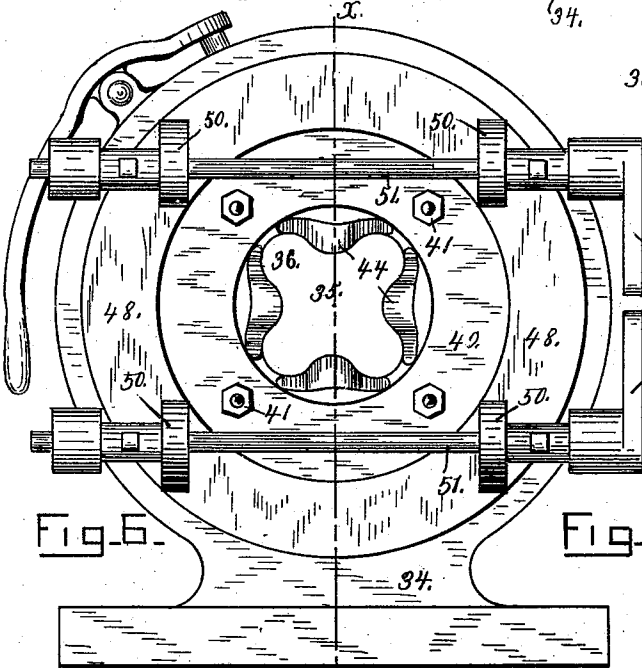


Fig. 6.

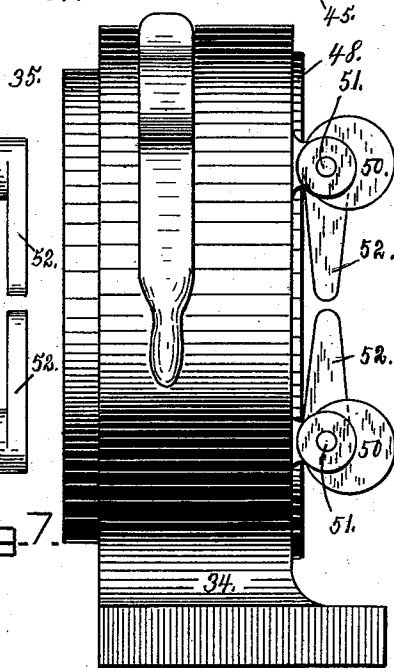


Fig. 7.

Witnesses:

J. P. Keston.
J. H. Murphy

Inventor.

Daniel H. Stoll

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UNITED STATES PATENT OFFICE.

DANIEL H. STOLL, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
MICHAEL NEWELL, OF SAME PLACE.

PIPE-CORRUGATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 568,635, dated September 29, 1896.

Application filed July 16, 1894. Renewed February 25, 1896. Serial No. 580,751. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. STOLL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Pipe-Corrugating Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machines for corrugating metal conductor-pipes.

Prior to my invention lengths of pipe have been corrugated by being placed upon a stationary mandrel having a series of longitudinal grooves into which the metal is pressed by rollers mounted upon a common head, which travels along the stationary mandrel, thus forming the corrugations upon the pipe.

The object of my invention is to provide a machine of simpler construction and adjustment; and to that end my invention consists, essentially, of a mandrel stationary upon a reciprocating bed, a die stationary upon the reciprocating bed provided with interior corrugating-grooves, and a stripper carried by a head rigid upon the frame for automatically removing the pipe from the mandrel and forcing it through the grooved die.

My invention further consists of the combination, with the above-named parts, of a seamer carried upon the head rigid with the frame for automatically closing the seam in the pipe and automatic means for crimping one end of the pipe just after it has been corrugated.

I will now minutely describe the manner in which I have carried out my invention and then claim what I believe to be novel.

In the drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is a similar elevation partly in vertical longitudinal section. Fig. 3 is a top plan view. Fig. 4 is an end elevation. Fig. 5 is an enlarged detached detail view of the carrier for the mandrel. Fig. 6 is an enlarged end elevation

of the grooved die and crimper. Fig. 7 is an enlarged side elevation of the same. Fig. 8 is a vertical section of Fig. 7, showing interior arrangement of parts; and Fig. 9 is a vertical section of Fig. 6, taken in the line *x x*.

Referring to the drawings, 1 is the frame, provided on either side with the longitudinal ways 22, upon which the bed 3, grooved upon its under side, is reciprocated. This bed has upon its under side the rack-bar 4, integral therewith. This rack-bar 4 engages with the gear-wheel 5, mounted upon the shaft 6. A spur-wheel 7 upon the shaft 8 intermeshes with the gear-wheel 5. Upon the shaft 8 is mounted the gear-wheel 9, which intermeshes with the spur-wheel 10, (see Fig. 4,) carried upon the shaft 11. This shaft 11 has mounted thereon the two fast pulleys 12 and 13 and the intermediate loose pulley 14. The belt 15 is changed from one pulley to another by the shifting-rod 16, which is operated by the hand-lever 17 and intervening mechanism to cause the bed-plate 3 to travel from left to right and automatically by the machine to reciprocate it in the opposite direction.

18 is a smooth cylindrical mandrel, one end of which is removably mounted in the standard 19, which is in turn pivoted upon the bed 3. (See Fig. 2.) This adjustment permits the mandrel to be swung to one side in order that the section of pipe 20 to be corrugated may be placed thereon when the mandrel is turned back to its operative position, as shown in the drawings.

21 is a head rigid with the frame 1, extending out over the bed 3. In this head is the sliding block 22, which is adjusted vertically by the screw 23 and hand-wheel 24. Depending from the lower end of the sliding block 22 is the curved arm or carrier 25, which extends under the mandrel and is provided with a friction-wheel 26, upon which the mandrel carrying the pipe rides. Pivoted in the lower end of this carrier is the spring-pressed stripper 27. An auxiliary sliding block 28 is adjusted vertically in the sliding block 22 by the screw 29 and hand-wheel 30. At the lower end of this auxiliary sliding block 28 is secured another spring-pressed stripper 31, extending in the same direction as the stripper 27 and diametrically opposite to it upon the

mandrel 18. A spring-pressed adjustable seaming-wheel 32 is also secured to the lower end of the sliding block 28, adapted for contact with the seam 33 in the pipe upon the mandrel 18. Upon the end of the bed 3, adjacent to the free end of the mandrel, is rigidly secured the standard 34, within which is removably mounted the hollow die 35, having a series of grooves 36 around its interior surface, the end 37 being made flaring, as clearly shown in Fig. 9.

The operation of the parts thus far described is as follows: A section of the pipe with its turned-over edges loosely joined is placed upon the mandrel, which has been swung out for that purpose. The mandrel is then turned in until it rests upon the friction-roller 26 in the carrier 25, its outer or free end being additionally supported near the die by the rest 38, rigid upon the bed 3. The motion of the bed 3 from left to right is then started by the lever 17, and the mandrel, stationary with the bed 3, is carried along in the same direction. The strippers 27 and 31 trail over the pipe 20, passing between them upon the mandrel, and the seamer 32 riding over the loosely-joined edges of the pipe, serves to compress them and tighten the seam. When the strippers reach the end of the pipe, they ride off the same and press closely against the mandrel, and in its retrograde movement they engage with the end of the pipe at top and bottom, causing it to move off the mandrel and enter the grooved die 35, through which it is forced. In its passage there-through the metal of the pipe is caused to conform longitudinally to the grooved inner surface of the die, corrugating it longitudinally. The strippers enter the die after the pipe and force it out through the opposite end, a pivoted adjustable holder 38 receiving and holding the finished pipe in a horizontal position until it leaves the die. Just as the pipe leaves the die its end edges are turned in or crimped by an automatic device, (clearly shown in Figs. 6, 7, 8, and 9,) in which 39 is a circular socket in the rear face of the standard 34, carrying the die 35. An annular ring 40 is centrally arranged within the socket 39, concentric therewith and secured by the screw-bolts 41. Within radial slots 42 in the ring 40 are loosely arranged the shanks 43 of the crimping-tools 44, corresponding in number to the corrugating-grooves 36 of the die 35. Their outer ends are beveled, as at 45. Spiral springs 46 rest in cylindrical grooves 47, constructed one half in the ring 40 and the other half in the shanks 43 of the crimping-tools 44. An annular ring 48 rests in the groove 39 around the ring 40, its inner edge 49 being beveled and in contact with the beveled ends 45 of the shanks 43. This plate is held in position by the cams 50, preferably four in number, upon the shafts 51.

Upon the outer ends of the shafts 51 are the levers 52, extending toward each other, their ends being close together, but not meet-

ing. A friction-wheel 53, upon the head 21, strikes the ends of the levers 52, and as they turn they force the cams 50 against the ring 48, which forces it inwardly against the action of the springs 54, causing the shanks 43 of the crimping-tools 44 to press against the end of the corrugated pipe just as it is leaving the die 35, which results in turning over or crimping its end edges. The spiral springs 47 force back the crimping-tools to their normal position after the crimping operation. Different-sized mandrels and dies may be employed, they being quickly and easily interchangeable in the machine, and lengths of pipe may be seamed without being corrugated by simply removing the die and crimper from its socket in the standard. The strippers, being independently adjustable upon the head, can be quickly adapted for operation with any sized mandrel, and the seamer can be adjusted in the same manner.

I claim—

1. A machine for corrugating pipe consisting essentially of a mandrel stationary upon a reciprocating bed, a die provided with interior corrugating-grooves and stationary upon the reciprocating bed and a stripper carried by a head rigid upon the frame for automatically removing the pipe from the mandrel and forcing it through the grooved die.

2. A machine for corrugating pipe consisting of a mandrel stationary upon a reciprocating bed, a die provided with interior corrugating-grooves and stationary upon the reciprocating bed, a seamer carried upon the head rigid with the frame for closing the seam in the pipe and a stripper carried by a head rigid upon the frame for automatically removing the pipe from the mandrel and forcing it through the grooved die.

3. A machine for corrugating pipe consisting of a mandrel stationary upon a reciprocating bed, a die provided with interior corrugating-grooves and stationary upon the reciprocating bed, automatic means upon the die for crimping one end of the pipe just after it has been corrugated and a stripper carried by a head rigid upon the frame for automatically removing the pipe from the mandrel and forcing it through the grooved die.

4. A machine for corrugating pipe consisting of a mandrel stationary upon a reciprocating bed, a die provided with interior corrugating-grooves and stationary upon the reciprocating bed, a seamer carried upon the head rigid with the frame for closing the seam in the pipe, automatic means upon the die for crimping one end of the pipe just after it has been corrugated and a stripper carried by a head rigid upon the frame for automatically removing the pipe from the mandrel and forcing it through the grooved die.

5. In a machine for corrugating pipe the combination with a mandrel stationary upon a reciprocating bed, of a carrier extending under the mandrel and vertically adjustable

upon the head rigid with the frame and a spring-pressed stripper upon the carrier for removing the pipe from the mandrel and forcing it through the grooved die.

5 6. In a machine for corrugating pipe the combination with a mandrel stationary upon a reciprocating bed, of a seamer vertically adjustable upon the head, rigid with the frame and a spring-pressed stripper carried
10 by the seamer for removing the pipe from the mandrel and forcing it through the grooved die.

7. In a pipe-corrugating machine the combination with a mandrel stationary upon a
15 reciprocating bed and a friction-roller upon the head rigid with the frame, of a pair of

levers turned by contact with the friction-roller, cams operated by shafts carrying the levers, an annular ring adapted to be forced into its socket by the cams and spring-pressed 20 shanks carrying the crimping-tools adapted to be forced inwardly by the annular ring, to crimp the edges upon one end of the pipe as it leaves the die.

In testimony whereof I have signed my 25 name to this specification in the presence of two subscribing witnesses.

DANIEL H. STOLL.

Witnesses:

W. T. MILLER,
F. P. RUSTEN.