(No Model.)

T. G. TURNER.

APPARATUS FOR CLEANING SHEET IRON.

No. 392,082. Patented Oct. 30, 1888.

Fig. 1.

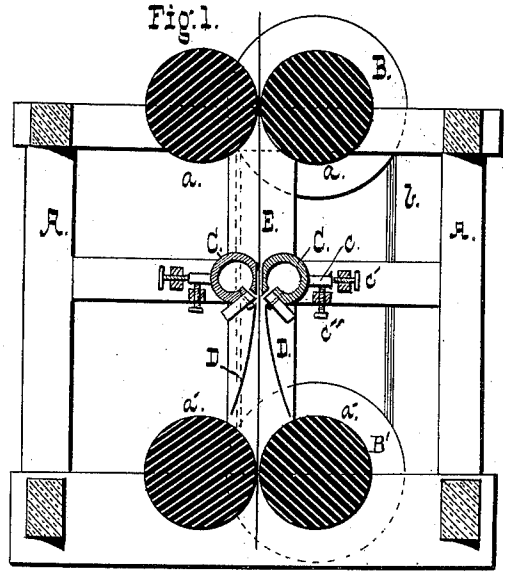


Fig. 4.

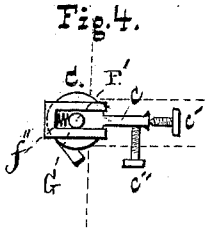


Fig. 2.

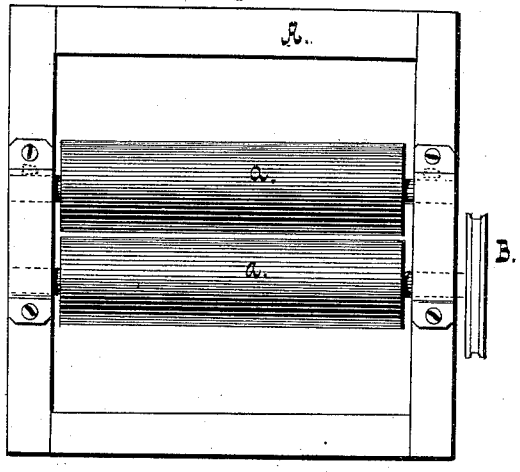
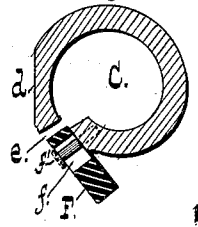


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS G. TURNER, OF MARSHALLTON, DELAWARE.

APPARATUS FOR CLEANING SHEET-IRON.

SPECIFICATION forming part of Letters Patent No. 392,082, dated October 30, 1888.

Application filed February 16, 1881. Renewed March 8, 1883. Serial No. 87,458. (No model.)

To all whom it may concern:

Be it known that I, THOMAS G. TURNER, of Marshallton, New Castle county, Delaware, have invented certain new and useful Improvements in Apparatus for Cleaning Sheet-Iron; and I hereby declare the same to be fully, clearly, and exactly described, as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical sectional view of the device. Fig. 2 is a plan of same, and Fig. 3 is a section of steam-pipe on an enlarged scale. Fig. 4 is a detail view.

My invention has for its object to provide means for cleaning sheet-iron which shall not be open to the objections which lie to those in common use. In practice, after the rolling of the sheet-iron is completed, it is found to be tough, springy, and elastic—qualities which must be eradicated prior to sending the article into commerce, as they would interfere with or perhaps wholly defeat the working up of the sheet into various articles. The qualities named are destroyed by annealing the sheet in suitable annealing-ovens, in which process the sheets become tarnished and sooty. Indeed, the more sooty the more perfect and complete the annealing. To remove this soot and discoloration is a great desideratum, as the salability of the sheets is thereby greatly increased. Heretofore this has been done at considerable expenditure of time and labor by processes of scrubbing with brushes, the sheets being made to pass under or between revolving rubbers. These had to be renewed as they wore out or became clogged with soot, and were otherwise objectionable. I have discovered that the cleaning of the sheets is most perfectly and expeditiously done by subjecting them to the action of a jet or sheet of heated air or steam, which is caused to impinge upon the face of the sheet at an angle of about thirty degrees. The steam for this purpose is made as hot as possible, having, say, a temperature of 450° to 500° Fahrenheit, whereby the sheets are reannealed, as it were, and are so highly heated that no danger of the dead-steam condensing on them and causing rust is to be feared.

In the drawings, A is the frame of the machine, in which are mounted in suitable yielding bearings the feed and delivery rolls *a' a*, which are driven in any convenient way, the motion of one set being imparted to the other by a belt, *b*, over the pulleys B B'. Between the rolls and on either side of the plane which passes between the meeting sides of both pairs is a steam-pipe, C, more fully shown in Fig. 3. These pipes have a flattened side, *d*, so that they may be brought very close to the sheet E, and have a longitudinal slit, *e*, the width of which may be regulated as desired. This is done by causing the plate F to approach or recede from the lip of the slit and securing it in place by the bolts *f'*, which pass through slots *f*, as clearly shown. On the rear side of each pipe is an arm, *c*, against which bear two set-screws, *c' c''*, the one in a horizontal and the other in a vertical direction, whereby the distance of the pipe from the sheet and the angle of incidence of the steam-jet may be altered as desired.

The construction of the parts is clearly shown in the detached figure, in which F' represents one of the end trunnions of the pipe, which rests against a spring, *f'''*, in the guide G.

D D are wire guides, which conduct the sheets to the opening between the pipe C.

In operation the rolls are caused to turn and a jet of highly-superheated steam is led through the pipes C. The sooty sheets are led up from below to the rolls *a'*, which grip them and pass them upward between the guides D. By these latter the sheets are conducted between the pipes and thence upward to and between the delivery-rolls *a*. In transit between the pipes the sheets are subjected on both sides simultaneously to the action of sheets or jets of highly-superheated steam, which impinge upon the iron sheets at an angle of about thirty degrees and effectually cleanse and scrub them. The sheets are also in transit heated to a point which completes the annealing process and are delivered at the top of the machine bright, clean, and dry, ready for packing.

What I claim is—

1. In combination with the feed and delivery rolls, the pipes C, adjustable to or from each other and also about their axis, as set forth.

2. The combination, with two sets of feed-rollers, of two pipes, one pipe arranged on

each side of a straight line passing between the rollers of each pair arranged opposite each other and having their adjacent sides flattened and provided with openings inclining in opposite directions to each other, substantially as and for the purpose specified.

3. The combination, with the pipe having an opening or slit in its sides, of the plate and means for adjustably securing the plate to the pipe on one side of said opening for regulating the same, substantially as described.

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