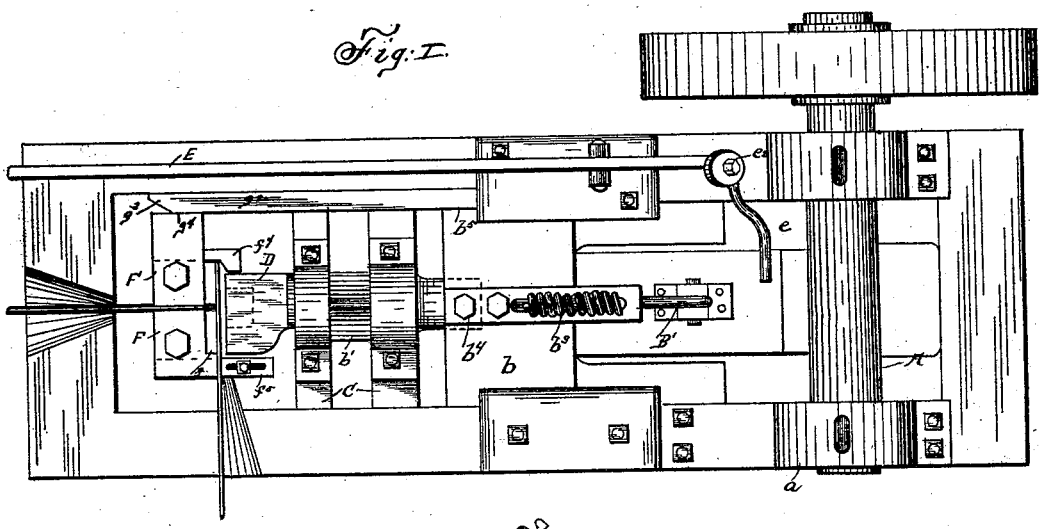
(No Model.) 2 Sheets—Sheet 1.

A. M. McGEE.

METHOD OF MAKING STOVE SCRAPERS.

No. 455,441. Patented July 7, 1891.

Fig. 1.



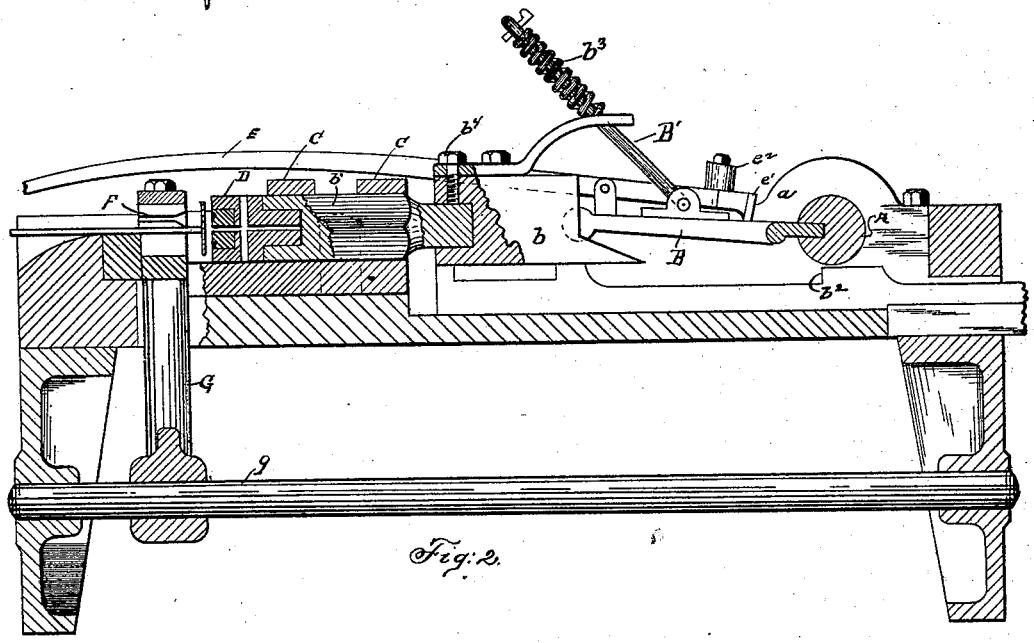


Fig. 2.

Witnesses
Victor Schneider
N. L. McClain.

A. M. McGee Inventor

By his Attorney
H. J. Fisher

(No Model.) 2 Sheets—Sheet 2.

A. M. McGEE.

METHOD OF MAKING STOVE SCRAPERS.

No. 455,441. Patented July 7, 1891.

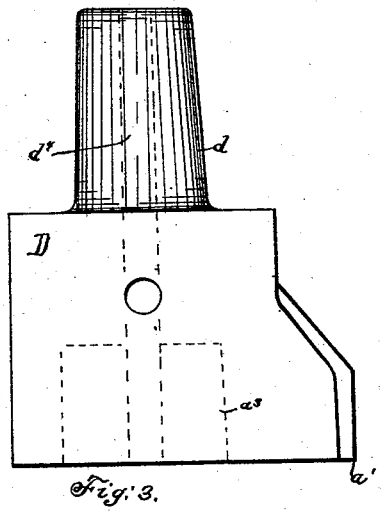


Fig. 3.

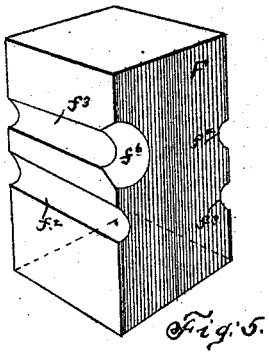


Fig. 5.

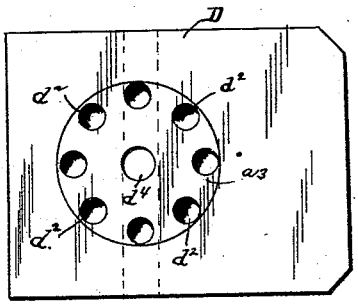


Fig. 4.

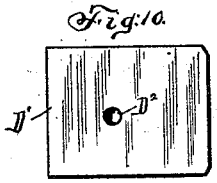


Fig. 10.

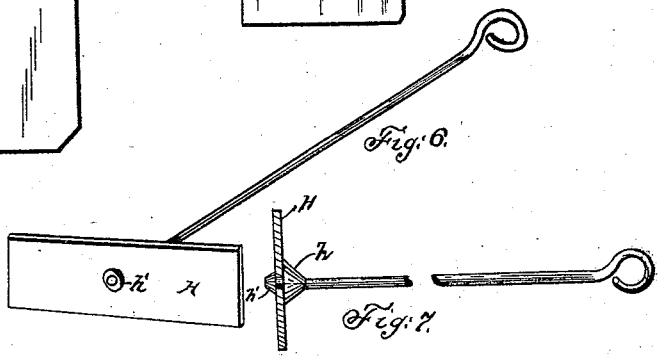


Fig. 6.

Fig. 7.

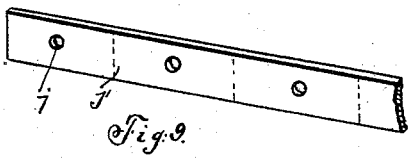


Fig. 9.

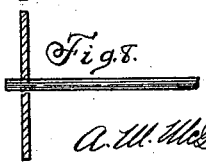


Fig. 8.

Witnesses
Victor Schneider
M. L. McLane

A. M. McGee Inventor

By his Attorney H. S. Fisher

UNITED STATES PATENT OFFICE.

AUGUSTUS M. McGEE, OF CLEVELAND, OHIO.

METHOD OF MAKING STOVE-SCRAPERS.

SPECIFICATION forming part of Letters Patent No. 455,441, dated July 7, 1891.

Application filed January 23, 1891. Serial No. 378,814. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS M. McGEE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Methods of Making Stove-Scrapers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates more especially to the manner of forming stove-scrapers, which consists of a scraper end composed of a flat bar of iron having riveted therein a handle or rod, by which the same can be easily manipulated.

The distinctive features of my invention consist in feeding into a suitable machine a flat bar of metal and providing a stop which limits the inward movement of the bar, and in means for moving the bar transversely or at right angles to the line of direction in which it was inserted in the machine, simultaneously cutting the bar off the proper length and forcing the cold bar against the end of a metal rod, which punctures the bar, and in the subsequent operation of forcing the rod back upon itself while in such bar, causing an upsetting of its own material, so as to form upon the inner side of the bar a flange upon the rod itself, while the plunger, which has forced the blank upon the rod rivets the outer end of the rod upon the outer face of the blank, thus making a secure and solid union between parts. I effect this process by the following mechanism, which is illustrated in the accompanying drawings, wherein—

Figure 1 is a top plan view of the entire machine, and Fig. 2 is a side elevation thereof, partly in section. Fig. 3 is a top plan view of the plunger. Fig. 4 is a front elevation of the plunger. Fig. 5 is a perspective view of one of the gripping-dies. Fig. 6 is a perspective view of the finished product, while Fig. 7 is an enlarged elevation in section, showing the manner of riveting the blank to the rod. Fig. 8 is a section of the step preceding Fig. 7. Fig. 9 is a perspective of a perforated blank; Fig. 10, a front elevation of the plunger D′.

The machine for carrying out my process is essentially the same as that described and shown in Letters Patent No. 414,949 of November 12, 1889, issued to myself, upon the process of heading blanks for bolts and rivets, in which there is shown a main driving-shaft A, which shaft operates through the medium of a clapper B upon a reciprocating cross-head *b*, which cross-head carries a plunger *b′*, sliding in suitable ways C. This plunger *b′* at its forward end has a recess, in which is placed a shear and rivet-die D. This die is intermittently carried backward and forward as the shaft comes in contact through its cam *a*, engaging either the clapper or the projection b^2 of the cross-head *b*. The clapper B is disengaged from the cam *a*, or, in other words, is held out of the reach of cam *a* by the rod B′ and the spring b^3 thereon. When it is desired to operate the cross-head *b*, the clapper B is lowered so as to be engaged by cam *a* by hand-lever E, which is fulcrumed at *e* and has a lateral projection *e′*, which reaches above the clapper, and by this means is lowered. To assist in lowering the forward projection *e′* of the arm E, I provide a counter-weight *e*.

The plunger-slide *b′* is held in the cross-head *b* by set-screw b^4, or in any other suitable manner. The dies F are held directly in front of the shearing-plunger D, with a slight space between them, one of said dies being stationary upon the frame of the machine, while the other is held in the upper end of a rock-arm G, which is pivoted upon a rock-shaft *g*. This rock-arm is actuated by a slide g^2, which is fastened to the cross-head *b* at about b^5, as shown in Fig. 1. This slide g^2 at its forward end has an incline g^3, which forces or moves the rock-arm G, carrying with it its die F toward the stationary die placed upon the opposite side of the machine. The slide also has a flat portion g^4, which allows the cross-head *b*, as well as the slide g^2, to continue its forward movement after the rock-arm G has moved up to its normal or closed position, the maximum of movement of the cross-head *b* being necessary to cut the blank off, as well as to force it upon the rod, which is gripped between the dies F. As will be seen, the rod which forms the handle of the scraper is first gripped before the blank is forced upon its end. The plunger D has a shank *d*,

which projects into the plunger-slide b', the forward end having a lateral projection or shearing-edge d', which coacts with a projection f, contiguous to the stationary die F, which serves to sever the blank. In the forward face of this plunger is an annular recess, in which is placed a sleeve which has a series of cup-shaped depressions d^2. The sleeve d^2 has a central opening d^4, through which the metal of the blank which is punctured out by the blank being forced upon the rod finds egress from the die. The depressions d^2 serve to more completely rivet the projecting end of the rod. The dies F are held in their place by set-screws or in any suitable manner, and they consist of semicircular grooves f^2 f^3, provided upon two faces thereon for the purpose of changing about after one or the other set becomes worn. The groove f^2 grips the rod when it is first placed therein, projecting a slight distance out from between the dies F in the direction of the plunger D. As the plunger D moves up toward the dies F and severs the blank it forces it against the projecting end of the rod and punctures an opening into the blank at the same time. When the machine makes its next stroke, the dies F have in the meantime opened. The rod, with the blank, is placed in groove f^3, which then allows the projecting end of the rod to register with one of the depressions d^2 of the plunger D, which forces the blank entirely home and upsets a portion of the rod, as at h, on the inside of the blank H, and also rivets the projecting end of the rod into about the shape shown at h' in Fig. 7, thus thoroughly riveting the blank upon the end of the rod. Adjacent to the die F, upon the movable rock-arm G, is placed a guide or stop f^4, which serves to limit the distance that the bar which is to form the blank can be thrust into the machine, while another guide f^5 serves to direct the bar properly into the machine.

In Fig. 9 I show a blank J, which has a series of holes j punched therein, the dotted lines j' showing about the location at which the bar is severed. The operation is this: Instead of using the plunger D, with its sleeve a^3, I substitute a plunger D′, having a cup-shaped depression D^2, instead of the central hole D^4, shown in plunger D in Fig. 4. The blank J is fed into the machine the same as the blank from which the previously-described scraper end is formed, and the rod which forms the handle of the scraper is then passed into the hole j of the blank while the gripping-dies are yet open, the plunger D′ serving as a stop to limit the inward movement of the rod. Then the gripping-dies close and the plunger moves forward, cutting off the blank and riveting the same upon the rod. The gripping-dies need only have the groove f^3, with a countersink f^6, the lower groove not being necessary in this modified manner of producing the scrapers. The projecting end of the rod, as shown in Fig. 8, is engaged by the depression D^2 of the plunger D′, the metal of the rod is first forced upon its hole j of the bar J, upsetting itself upon the inside of the blank J and in the shape as determined by the countersink f^6, and the remaining portion of the metal upon the outside is formed into the shape of a rivet-head by reason of the cup-shaped depression D^2, thus firmly securing the bar upon the rod.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a process of forming stove-scrapers or analogous devices, a means for thrusting a metal rod through a metal bar while in a cold state and upsetting the metal of the rod upon either side of the bar, substantially as described.

2. In the process of uniting two metals in a cold state, consisting, first, in forcing a flattened bar upon the end of a projecting rod, causing the rod to entirely pierce the said bar, and, second, in upsetting the metal of said rod upon either side of said bar, substantially as described.

3. In a machine for forming stove-scrapers, gripping-dies to hold a rod, a blank and a suitable plunger for forcing the blank upon the end of the rod, and by means of such plunger riveting the rod upon said blank, substantially as described.

4. The process of uniting two metals in a cold state, consisting, first, in forcing a flattened bar upon the end of a projecting rod, and, second, in simultaneously cutting off such bar into proper length while it is being forced upon said rod, substantially as described.

5. The process of uniting two metals in a cold state, consisting in riveting a flattened bar upon a rod and simultaneously severing the said bar into proper lengths, substantially as described.

Witness my hand to the foregoing specification this 17th day of January, 1891.

AUGUSTUS M. McGEE.

Witnesses:
H. T. FISHER,
N. L. McLANE.