(No Model.)

A. WILBUR.

FLANGING MACHINE.

No. 306,794. Patented Oct. 21, 1884.

Fig. 1.

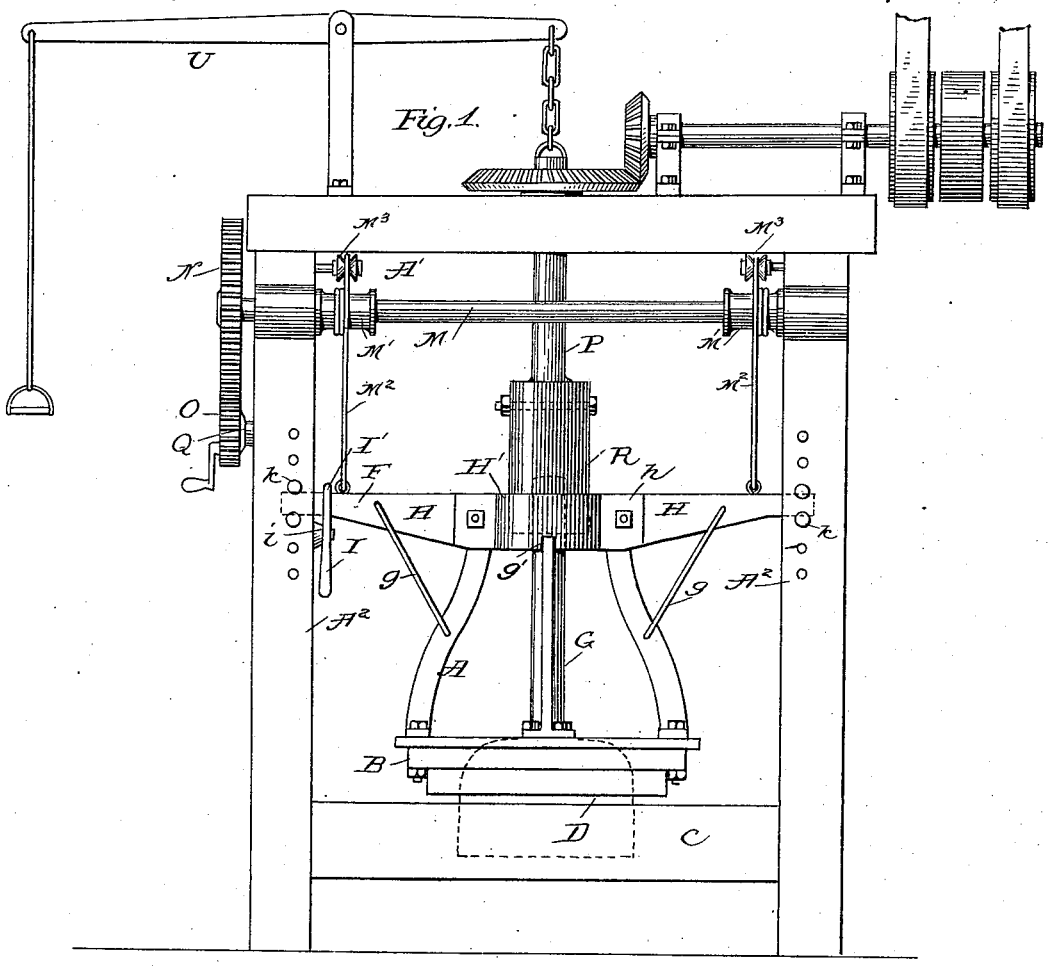


Fig. 2.

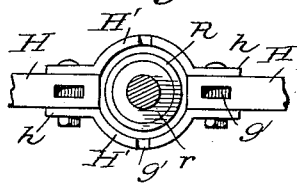
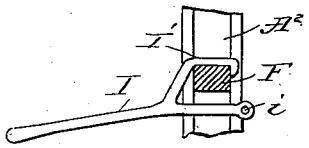


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALFRED WILBUR, OF ALLEGHENY CITY, PENNSYLVANIA.

FLANGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 306,794, dated October 21, 1884.

Application filed January 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALFRED WILBUR, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Flanging-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to an improvement upon the flanging-machines for which I obtained Letters Patent No. 276,111 on the 17th day of April, 1883. The machine therein described consists of a cage having an annular former at its base, a flanging-head mounted on a shaft extending up through the cage, such shaft having a threaded upper end, which engages with a nut secured within a revolving sleeve connected to the power-shaft. The plate to be flanged is placed upon a table below the former, and the flanging-head is drawn up through the opening previously cut in the plate, bending the metal up against the annular former and causing it to stand at right angles to the face of the plate. This machine is generally used for what is termed "inside flanging," such as for forming the flanges around the flue-holes of boiler-heads. In using the machine as thus constructed it has been found that difficulty is experienced in holding the cage and former perfectly stationary and rigid against the twisting strain to which they are subjected during the operation of flanging. The means for locking the cage shown in Fig. 1 of the patent referred to have been found inadequate, and to supply a more efficient device for this purpose is one of the objects of my invention. Further, in the machine constructed as heretofore described there was no provision for raising the cage and former to remove the flanged plate after the power-shaft had been disconnected from the shaft of the flanging-head. It was usually accomplished by hand, a method always difficult and often dangerous, on account of the heat of the parts, and delay was frequently caused on this account.

To provide mechanical means for raising the cage and former is another object of this invention.

My invention consists, then, in combining with the cage, former, and flanging-head a sliding cross-head working in guides in the main frame and rigidly connected to the cage and former, and mechanism for adjusting the said cross-head; further, in a peculiar lever for forcing such cross-head, cage, and former down to their proper position relative to that of the plate to be flanged; further, in locking devices to hold them in such position, and mechanical means for raising them bodily after the completion of the operation of flanging, and the disconnection of the power from the flanging-head shaft.

It also consists in details of construction, which will be more fully hereinafter described.

In the accompanying drawings, to which reference is made, Figure 1 is a front view of the machine. Fig. 2 is a bottom view of the cross-head. Fig. 3 is a detail view of the lever.

A represents the cage; B, the former; C, the table; D, the flanging-head; R, the hollow sleeve; *r*, the nut within such sleeve; G, the shaft of the flanging-head, and P the power-shaft connected to the operating gearing and pulleys, and also to the hand-lever U, for disconnecting it from the flanging-head shaft.

A′ represents the main frame of the machine, which has two internally-grooved vertical standards, A^2. These grooves form guides, in which are held the ends of the cross-head F, which thus extends from one side of the table to the other. The cross-head is composed of side bars, H H, and of central semicircular sections, H′ H′, having flanges *h*, by which the parts are bolted together, Fig. 2. A central circular opening is thus formed, through which passes the shaft G of the flanging-head, and into which descends the lower part of the hollow sleeve R, to which the shaft G is connected. The cross-head extends across the machine just above the cage, to which it is connected by brace-rods *g g*. Notches *g′ g′* are formed in the bottom of the cross-head—two upon the sections H′ H′ and two upon the bars H H—and into these notches fit the edges of the bars of the cage. It is clear, therefore, that the cage is rigidly held, and is permitted to have motion only in a vertical direction, when the cross-head is raised or lowered, and that it is capable of adjustment by means of such cross-head. The downward movement of the cross-head to place the cage and former in proper position relative to that of the flang-

ing-head is caused by a pivoted lever, I, mounted upon a pin, *i*, on the main frame and having a hooked arm, I′, which extends up over the top of the cross-head. Depression of the lever I necessarily lowers the cross-head, cage, and former, and they are locked in position, according to the thickness of the plate to be flanged, by pins *k k*, which enter any of a series of holes in the channel-shaped standards. When locked in this position, the power is applied, the flanging-head is drawn up into the cage, pressing the metal around the edge of the hole in the plate against the former, thus making the flange. The belts are then shifted, unscrewing the nut *r* from the shaft G, as described in the Letters Patent referred to, and by means of the lever U the hollow sleeve is drawn up out of the way.

The device for raising the cage and former in order to remove the flanged plate consists of a shaft, M, journaled in the front of the main frame. On this shaft are spools M′ M′, on which is wound a cord, M^2, which passes over a sheave, M^3, and then descends vertically and is connected to the cross-head.

On the end of the shaft M is a spur-wheel, N, into which gears a pinion, O, mounted on a crank-shaft, Q. By turning the crank the cord is wound upon the shaft and the cross-head raised to any suitable height above the table. The former and cage are by these means kept under the constant control of the operator, and may be elevated, lowered, and locked rigidly in place with slight labor and trouble.

Having thus described my invention, what I claim is—

1. In a flanging-machine, the combination, with the cage and former, the flanging-head and power-shaft and driving mechanism, of the sliding cross-head connected rigidly to the former and provided with adjusting and locking mechanism.

2. The combination, with the cage and former of a flanging-machine, of a sliding cross-head having the notches *g′ g′*, for the purpose set forth.

3. The combination, with the main frame having channel-guides, of the cross-head connected to the cage, the pivoted lever I, and the locking-pins.

4. Combined with the cage and former and the sliding cross-head rigidly connected thereto, the shaft M, the cord, and winding mechanism.

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

ALFRED WILBUR.

Witnesses:
W. H. ANTRIM,
F. C. SMITH.