No. 734,496. PATENTED JULY 28, 1903.

J. H. AMES.

MULTIPLE PUNCH.

APPLICATION FILED OCT. 15, 1902.

NO MODEL.

Fig. 1.

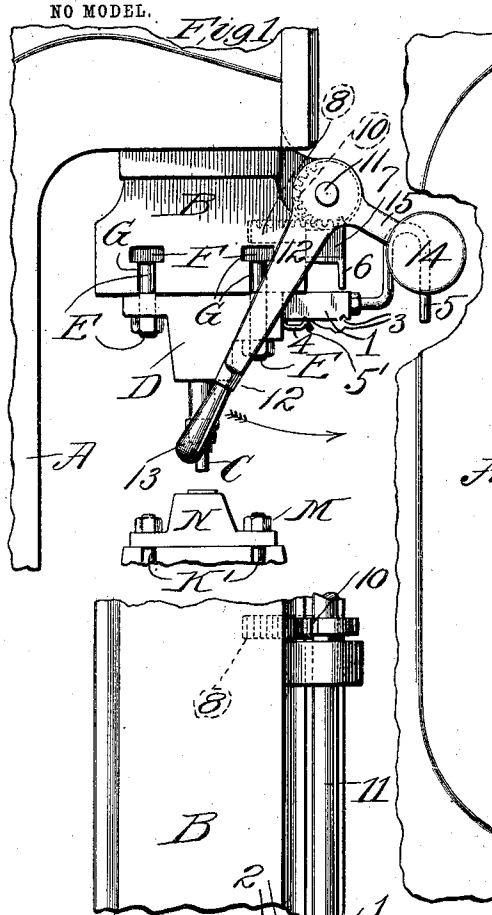
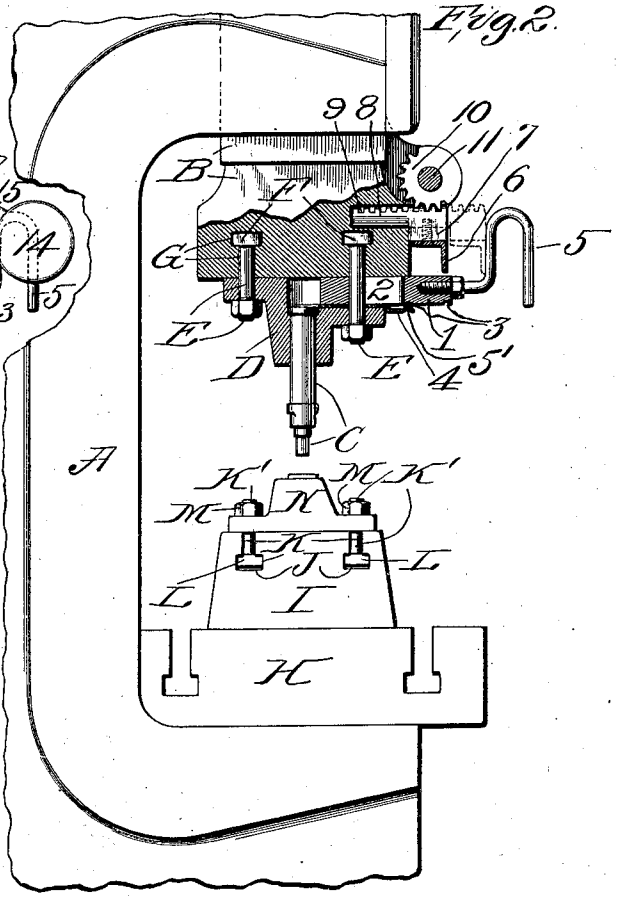


Fig. 2.



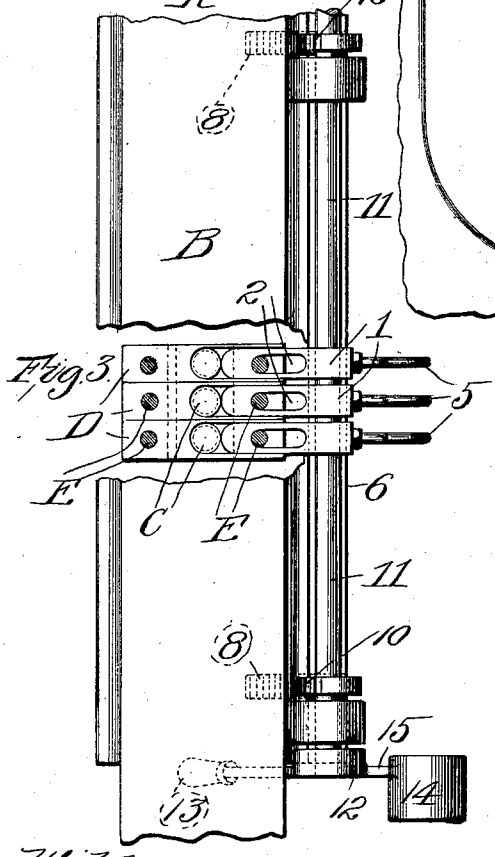
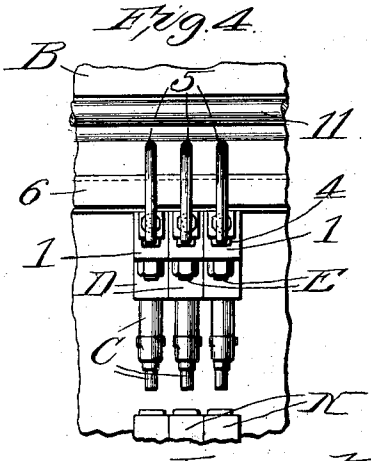


Fig. 3.

Fig. 4.



Witnesses:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 734,496. Patented July 28, 1903.

UNITED STATES PATENT OFFICE.

JOSEPH H. AMES, OF ST. LOUIS, MISSOURI, ASSIGNOR TO AMERICAN CAR & FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

MULTIPLE PUNCH.

SPECIFICATION forming part of Letters Patent No. 734,496, dated July 28, 1903.

Application filed October 15, 1902. Serial No. 127,395. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. AMES, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Multiple Punches, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a fragmentary side view of the head and a portion of a bed-piece of a punch to which the invention is applied. Fig. 2 is a similar view illustrating in section the construction of additional features of detail. Fig. 3 is a broken plan of the head with the invention applied, and Fig. 4 is a face view of a portion thereof.

This invention is applied especially to multiple punches, such as are used in the punching of sheet-metal members to be used in steel-car construction, though it will be apparent that it is capable of use for a variety of similar purposes; and it consists in certain novel features of construction, combination, and operation of parts, all as hereinafter more fully described, and specifically pointed out in the claims.

Referring to the drawings, A represents the yoke or gap in the vertical frame of a multiple punch, of which there is one at each end for supporting and guiding the usual vertically-reciprocatory head B, carrying the punches C within a block D, secured in position upon the under face of said head B by means of the bolts E, which have the usual enlargement or squared head F, riding in a longitudinal channel G in said head B to permit of shifting the position of said punch-block D, as well understood.

Upon the bed-plate H is the usual bed-block or casting I, provided with channels J with vertically-rising slots K, within which ride the bolts K′, provided with enlarged heads L and nuts M for securing to said bed-block the dies or female member N of the punch as generally constructed.

It will be understood that the punching members are slidable along the length of the head and bed-block in the usual manner, which is permitted by loosening the nuts upon the securing-bolts thereof, after which said nuts are tightened to secure said parts in coincident operative position.

In coöperative relation to the punches C are gags 1, which in this construction comprise slidable members locked in position between the head B and block D by means of one of the bolts E, which passes through the slot or opening 2, whereby said gag is slidable longitudinally to cause the inner end thereof to fill the gap between the upper end of the punch C and the lower face of the head B, whereby a solid abutment therefor is provided for the operation of punching when desired. Upon the under face of the projecting portion of said gags 1 are provided recesses 3, and between the block D and said gags are held flat springs 4, provided with bent portions 5′, which register with said recesses when the gags are withdrawn or thrust home and by the click caused in registering locks the same and indicates to the operator that said gags are properly seated to cause their respective punches C to operate or not, as may be desired.

Connected in any convenient manner to the outer ends of said gags are operating-handles 5, which may be of any convenient or desirable form or material, but which are here illustrated as bent in return-curve, so as to form a convenient handle for the operator and a riser above the outer end of said gags. Extending across the gap of the machine and above said gags is a thrust or disengaging bar of any suitable conformation, in the drawings being represented as an angle-iron 6, connected at each end to the under side of the offsets 7 of the sliding pins 8, upon the upper faces of which pins are provided racks 9, with which engage the segments 10, which segments are keyed to a shaft 11, which latter is substantially equal in length with said thrust or disengaging bar 6 and upon the outer end of which is rigidly secured the weighted lever 12, provided at one end with the handle 13 and at the other end with the weight 14, connected thereto by means of the arm 15, said weight being sufficient to overcome the friction of the sliding rack and disengaging bar, pins, &c., and to hold the said

bar 6 normally in the position indicated in full lines in Figs. 1 and 2, wherein the handles 5 are freed from contact therewith and may be pushed in to close the gap immediately above the punches C when desired.

It will be apparent that any number of punches consistent with the size of the machine may be used and that any one or more of them may be placed in operation by the mere insertion of the blocks 1, as has been done heretofore, the bar 6 being out of the way, and that the punch will operate in the usual manner. When, however, it is desired to substitute a new series or part of a new series of punches, instead of the operator being obliged to manually operate each gag to withdraw the same preparatory to resetting in changed series the handle 13 is grasped and drawn forward, thus rocking its shaft, whereupon the segment will advance the racks 9 upon the upper part of said sliding pins, carrying outwardly said bar 6 against the handles 5 and projecting said gags outwardly, thus clearing all the punches and leaving the entire set in position to be positioned for the changed arrangement, after which the weight upon said handle will reset the same and its connected parts in their normal position.

I am aware that many minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. In a multiple punch, a series of punches adapted to be moved to different positions across the gap thereof, gags adapted to coöperate with said punches movable therewith, and releasing means coöperating with said gags; substantially as described.

2. In a multiple punch, a series of punches, some of which are adapted to be moved to different positions across the gap thereof, gags movable therewith, and releasing means coöperating with said gags; substantially as described.

3. In a multiple punch, a series of slidable punch-carrying means, punches and gags, both of which are movable therein and therewith, and a single member operable to release a series of said gags when in different positions; substantially as described.

4. In a multiple punching-machine, a series of punches therein movable laterally and longitudinally, means also movable laterally and longitudinally for securing some of said punches in operable position, and means adapted to release a plurality of said punches; substantially as described.

5. In a multiple punching-machine, a series of punches therein movable laterally and longitudinally, means also movable laterally and longitudinally for securing some of said punches in operable position, and means adapted to release a plurality of said punches substantially simultaneously; substantially as described.

6. In a multiple punching-machine, a reciprocatory head, punches movable vertically and laterally therein, a series of individually-operable gags for said punches movable therewith, means for indicating the operable position of said gags and locking them in said operable position, and means for releasing said gags in series; substantially as described.

7. In a multiple punching-machine, a reciprocatory head, punches movable vertically and laterally therein, a series of individually-operable gags for said punches, means for indicating the operable position of said gags and locking them in said operable position, and means for releasing said gags in series; substantially as described.

8. In a multiple punching-machine, punches, movable gags adapted to hold the same in operable position, means for indicating such operable position and locking said gags in their operable position, coöperating with each of said gags, and a releasing device in operable proximity to and adapted to release all of said gags; substantially as described.

9. In a multiple punching-machine, a releasing device comprising a movable member, a series of laterally and longitudinally movable punch-holding means and means for operating said movable member with relation thereto to release said punches; substantially as described.

10. In a multiple punching-machine, a series of punches movable longitudinally and laterally, longitudinally and laterally movable means for holding them in operative position, extensions on said holding means, a common releasing device in operable relation thereto, supports for said releasing device, and means for projecting the same whereby said releasing device retracts said holding means; substantially as described.

11. In a multiple punching-machine, a series of punches movable longitudinally and laterally, means movable laterally therewith for holding them independently in operative position, extensions on said holding means, a common releasing device in operable relation thereto, supports for said releasing device, and means for projecting the same whereby said releasing device retracts said holding means; substantially as described.

12. In a multiple punching-machine, a series of punches movable longitudinally and laterally, means movable laterally therewith and adapted to limit the longitudinal movement thereof, a common releasing means, a rock-shaft carrying a weighted lever, and connections therebetween and said releasing means for operating the same; substantially as described.

13. In a multiple punching-machine, a plurality of punches with stops therefor, a rock-shaft, a plurality of carriers operable there-

by, a releasing-bar connected thereto, and means for moving said bar and carriers whereby said stops are removed from the path of said punches; substantially as described.

14. In a multiple punching-machine, a rock-shaft, a releasing-bar operated therefrom, and means for holding said releasing-bar normally retracted; substantially as described.

15. In a multiple punching-machine, a rock-shaft, a weighted arm connected thereto, a releasing-bar operated therefrom, and means for causing synchronous projection of both ends of said bar; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 9th day of October, 1902.

JOSEPH H. AMES.

Witnesses:
GEORGE BAKEWELL,
G. A. PENNINGTON.