

No. 711,237.

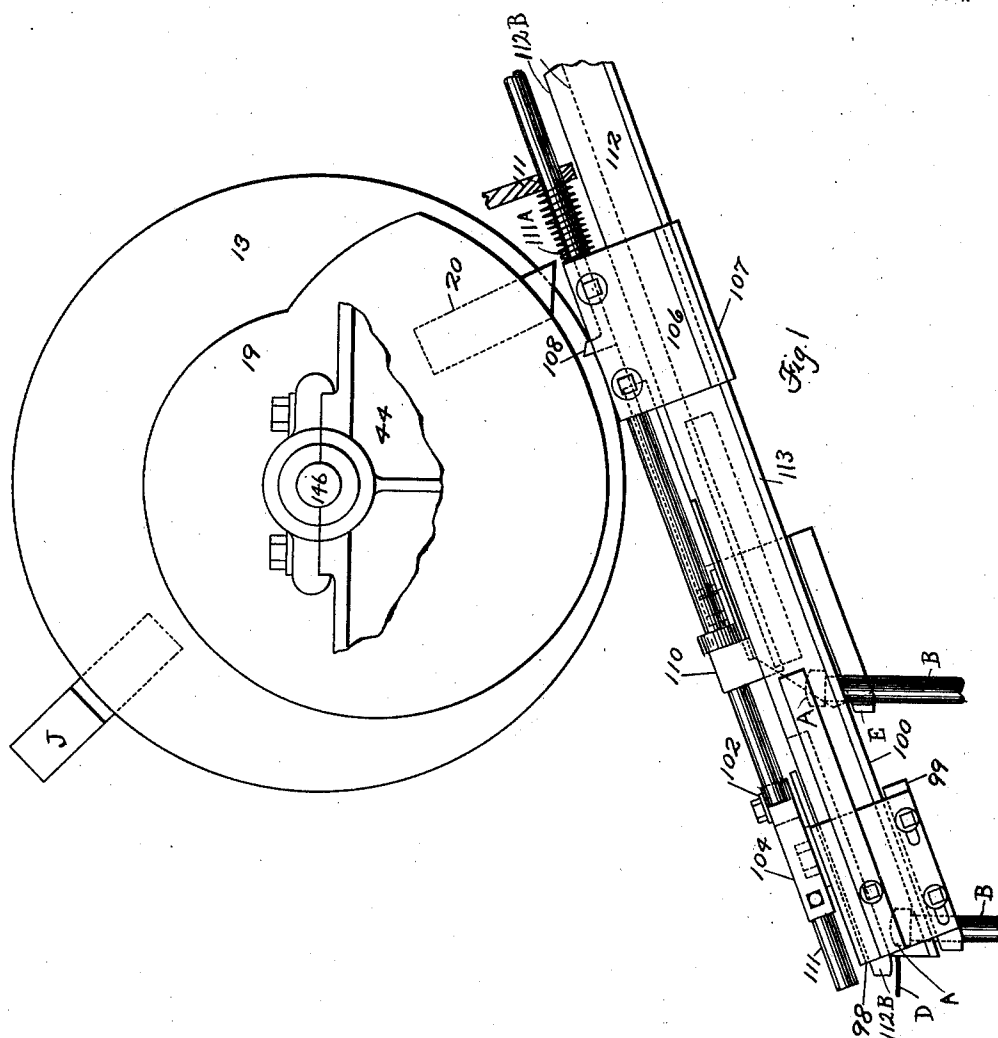
Patented Oct. 14, 1902.

F. P. STIKER & O. C. BURTON.
CHUTE FOR METAL DRESSING MACHINES.

(Application filed Sept. 12, 1901.)

(No Model.)

4 Sheets—Sheet 1.



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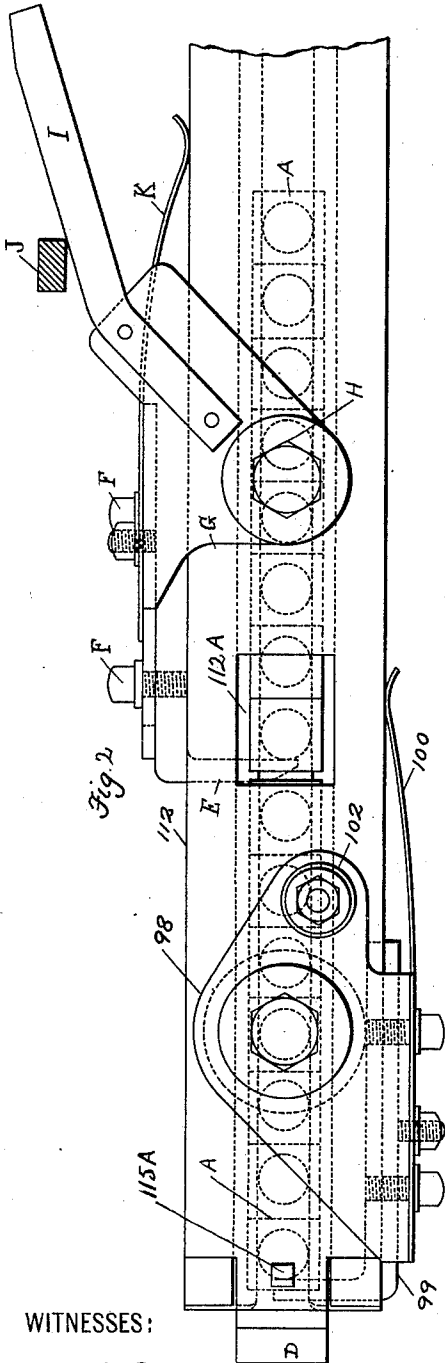
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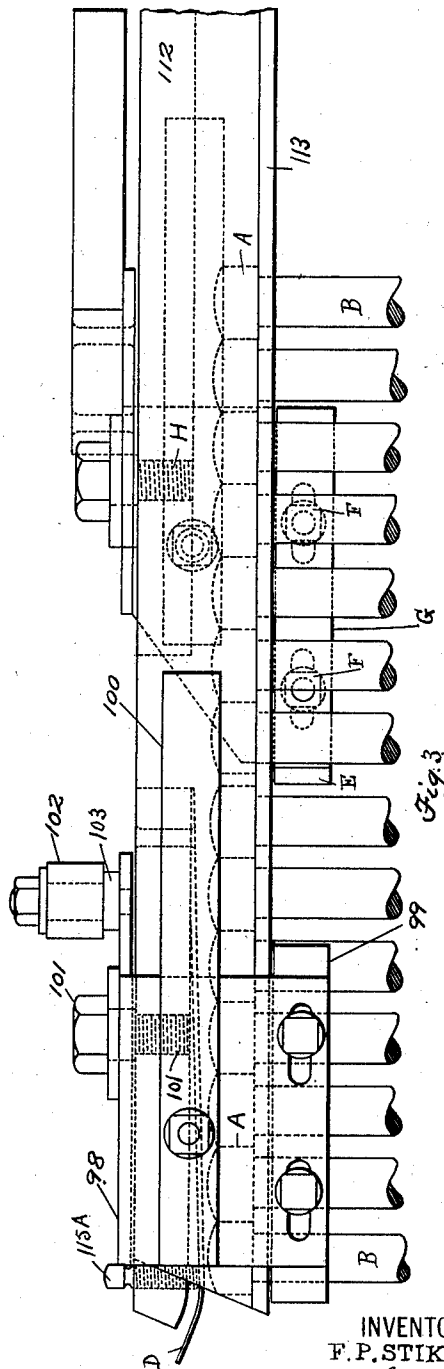
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4 Sheets—Sheet 2.



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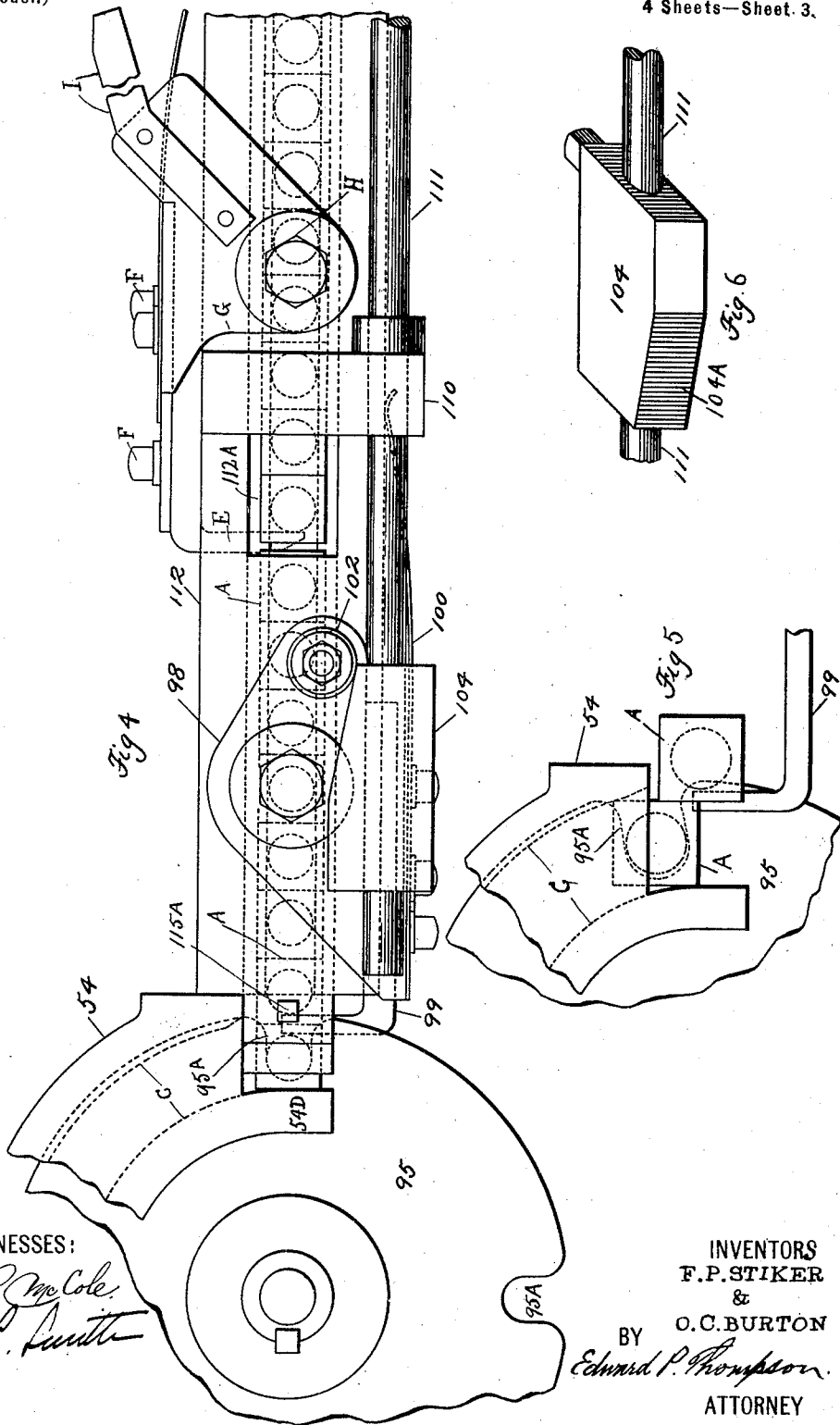
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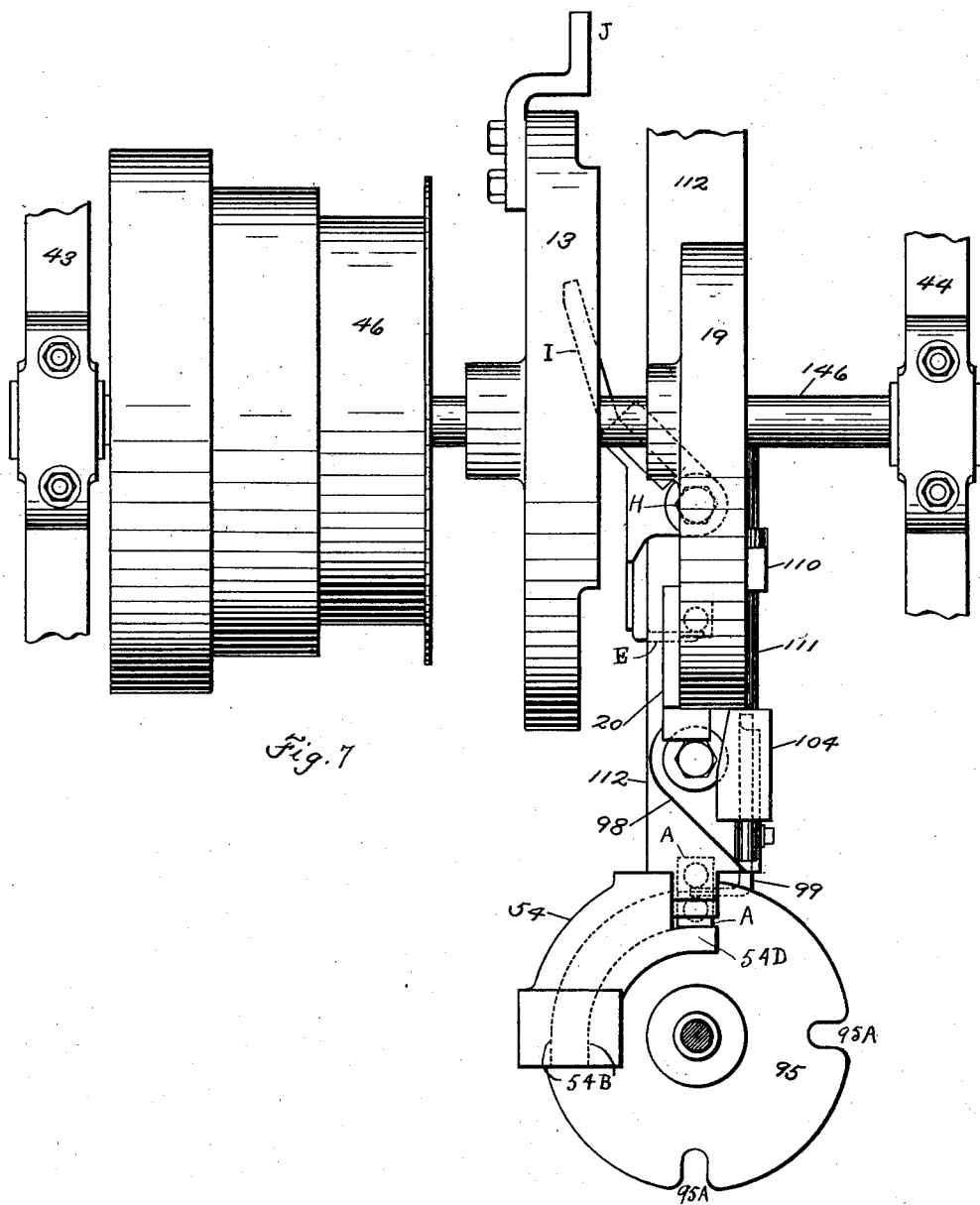
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UNITED STATES PATENT OFFICE.

FLAVIUS P. STIKER, OF BUFFALO, AND ORVILLE C. BURTON, OF NORTH
TONAWANDA, NEW YORK.

CHUTE FOR METAL-DRESSING MACHINES.

SPECIFICATION forming part of Letters Patent No. 711,237, dated October 14, 1902.

Application filed September 12, 1901. Serial No. 75,184. (No model.)

To all whom it may concern:

Be it known that we, FLAVIUS P. STIKER, a resident of Buffalo, in the county of Erie, and ORVILLE C. BURTON, a resident of North Tonawanda, in the county of Niagara, State of New York, citizens of the United States, have invented certain new and useful Improvements in Chutes for Metal-Dressing Machines, of which the following is a specification.

Our present invention relates to one of the details of an improved machine for dressing pieces of metal which are held by one end while the other end is being dressed, milled, threaded, or pointed. One of the applications of the machine is the cutting of threads on bolt-blanks, and therefore the description will be confined to the explanation of a bolt-machine.

More particularly the invention relates to a chute which is intended to feed bolts in an automatic and reliable manner to the bolt-carrier.

Heretofore, in machines of this type, long and heavy bolts are apt to be jammed between the carrier and the guide above the carrier, although short bolts may be fed uniformly without attention on the part of the operator. The same machine, however, that will operate satisfactorily with a rather large number of short bolts or with a rather small number of long bolts will not feed a larger number of long bolts without special provision. We have solved the difficulty by a combination of elements forming the subject-matter of this application.

Figure 1 is a side elevation of the chute and of the means for operating the bolt-releasing devices. Most of the upright or support is broken away and many other parts of the bolt-machine are entirely omitted, as they would not assist in the explanation. Fig. 2 is a plan of the chute except for the right-hand portion thereof; but for greater clearness the chute is not inclined as shown in Fig. 1 and the scale is much larger. The heads of bolts and other hidden portions are indicated by dotted lines. Fig. 3 is a side view of Fig. 2, the lower portions of the bolts being broken off and omitted. Fig. 4 is a view similar to Fig. 2 with the addition of

the inclined plane, its rod, and lower bearing, carrier, and guide in part. Fig. 5 shows a portion of the carrier and guide and also that phase of the carrier and gate in which a bolt is entering the guide. Fig. 6 is a perspective view of the inclined plane for operating one of the gates. Fig. 7 is a plan of so much of a bolt-machine as will assist in understanding the construction and operation of the present invention.

For a clearer understanding of the bolt-machine to which this invention may be applied we refer to our former patent, granted August 19, 1902, No. 707,272.

Referring particularly to Fig. 5 and to the other figures generally, it may be noticed that the bolts A bear upon one another at the corners. If the pressure of the right-hand head is too great upon the left-hand head, the latter will not enter the guide-piece 54 between its circular surfaces C when fed in a circular direction by the notched carrier-wheel 95. The object of Fig. 5 is to exhibit what the invention is intended to accomplish—namely, a relieving of the pressure of a large number of bolts sliding down an inclined chute without diminishing the number of bolts. All the elements cooperating to produce the results aimed at will now be described.

The inclined feeding-chute is indicated at 112, and consists of a long piece having a longitudinal slot extending throughout the whole length on the lower side, where there are strips 113, projecting inwardly for forming tracks upon which the bolt-heads may rest and down which they may slide. The heads of the bolts being square, hexagonal, or any other form having two sides parallel, are in the proper position to enter the bolt-carrier, hereinafter described. A hole 112^A may be provided for the removal of bolts centrally located in the chute without the necessity of removing all preceding bolts. The roof 112^B of the chute is slightly higher than the tops of the bolts for permitting the spring D to be located there and adjusted by a set-screw 115^A. This screw seldom needs adjustment, because all the bolt-heads are of about the same thickness. By this means the bolts drop more gently and sat-

isfactorily from the chute to the bolt-carrier. If the depth of the chute is built with the right depth, the adjustable spring D may be dispensed with.

- 5 The chute 112 is always stationary with the frame and is adapted to hold a very large number of bolts, which may be of the longest length the machine is designed for and which may be fed into the upper end by hand or in
10 any other convenient manner, provided that the heads of the bolts B rest upon the tracks 113.

- 99 is a gate bolted adjustably by bolts 98^B in slots 98^A to a plate 98, which serves as a
15 lever, the pivot-pin of which is 101, for permitting the hook or gate 99 to spring back and forth. The pin 101 has its bearing on the top of the chute. The plate 98 is an angle-piece and carries a roller 102, which is op-
20 erated by an inclined plane for the purpose of opening the gate 99 and which is held away from the plate 98 by a collar 103 and which is rigid with the gate 99 and with the plate 98 except that the roller may rotate on
25 its pin. The gate 99 is held in a yielding manner in its normal position for retaining the bolts in the chute by means of a spring 100, which is fixed to the side of the angular plate 98 and extends and presses against the
30 chute or a suitable abutment. The inclined plane 104 is fixed upon the lower end of a long rod 111, which is adapted to have longitudinal movements in bearings, one of which is 110. This rod 111 carries a slide 106, which
35 is movable along the chute 112 by having inwardly-projecting strips 107 on the under side of the chute. This slide carries a projecting lug 108, lying in the path of a constantly-rotating tripping-finger 20, which
40 moves around the shaft 146, and is therefore conveniently attached to one, 19, of the cams carried upon said shaft. This slide 106 is adjustably fixed to the rod 111. 110 also represents a stop for the spring 111^A surrounding the rod 111 and abutting against the slide
45 106, said spring being a retractile spring to return the rod 111 after being moved upward by the tripper 20. The lower stop being fastened to the rod 111 limits the downward motion of said rod by striking against the abutment 110. The function, therefore, of the rod
50 111 is to move the inclined plane 104, which in turn moves the gate 99 for opening the gate, while the function of the spring 100 is to close the gate again before the second bolt can fall from the chute to the bolt-carrier. This movement is insured by the location of the tripper on the cam-wheel 19.

- By "inclined plane" we mean a block 104,
60 having a surface 104^A, which slants laterally with reference to the roller 102, so that when the inclined plane moves longitudinally with the rod 111 the roller 102 is obliged to move away from said rod, and therefore tilt the
65 lever-plate 98, and with it the gate 99.

It is immaterial how the tripper 20 is caused to intermittently move the lug 108, and there-

by open the gate 99, but said tripper is conveniently carried by mounting it upon the cam 19. In brief, the inclined plane 104 opens
70 the gate 99 and the spring 100 closes said gate again. This step is repeated every time the tripper 20 operates the rod 111 and must take place every time that a bolt is to be fed
75 into the bolt-carrier wheel.

The bolt-carrier consists of a notched wheel, the notches being of a size slightly larger than the diameter of the bolt and all the notches being equally spaced around the periphery of the wheel. These notches are num-
80 bered 95^A. They are small enough in width to permit the under surface of the head of a bolt to rest upon the wheel. As a mere matter of convenience the wheel 95 is provided with four equally-spaced notches. It is evi-
85 dent that there would have to be at least two such notches, the machine being timed accordingly. A notch 95^A is directly opposite and close to the lower end of the tracks 113 of the chute 112 for the evident purpose of be-
90 ing ready to receive a bolt when it is released by the gate 99. The principal function of the rotary bolt-carrier 95 is for taking a bolt to a point over the center of the dies and subsequently for feeding said bolt from the
95 center to the discharge-chute.

By means of the construction thus far described short bolts or a few long bolts may be fed automatically from the chute to the carrier and moved to the threading position with-
100 out any danger of bolts being jammed in the guide 54; but when many large bolts are to be fed automatically we provide means for preventing any stoppage of the bolts in the guide 54. To this end there is a supplement-
105 ary gate E, similar to the gate 99 and located at the eighth bolt back from the front bolt. The location may be determined by running the machine and noticing how many long bolts may be in the chute without any stop-
110 page. The gate is bolted adjustably by bolts F, passing through slots to an angle-plate G, which serves as a lever whose pivot is H, around which the gate E may swing back and forth. This pivot is screwed into a hole in
115 the top of the chute 112. The angle-lever carries an arm I, extending laterally from the chute and located in the path of a tripping-finger J, extending from the wheel 13, mounted upon the shaft 146 in such a position that the
120 finger J will open the gate E at any time during which the gate 99 is closed. Immediately after the finger J has escaped from the arm I the spring K returns the gate E to its normal or closed position, said spring being
125 fastened to the lever G and bearing against the chute 112, which serves as an abutment.

Although the gates E and 99 and the levers G and 98 are not shown as duplicates, especially as the roller 102 is not necessary on the
130 lever G, yet if desired in the manufacture of the bolt-machines by the hundred these parts may be made alike.

The carrier 95 has notches 95^A for receiv-

ing the shanks of the bolts and may be rotated to carry the bolts away from the chute 112 to a suitable position for threading. No means are shown for rotating the carrier; but it may be assumed that the same is turned by hand.

The carrier 95 stands directly at the mouth of the chute 112, and thus stops the lower column of bolts from falling out of the chute when the lower gate 99 is open and serves to control the feed of the bolts from said chute.

The cone-pulley may be employed for driving the mechanisms, as it is on the shaft 146, which is supported in bearings on the up-rights 43 and 44.

We claim as our invention—

1. The combination with the inclined feeding-chute of a metal-dressing machine, of gates at different portions of said chute, means by which the lower gate is timed to open and close, then the upper gate to open and close, then the lower gate to open and close, and so on indefinitely, and a device for controlling the feed of the lower column of bolts during the opening of the lower gate.

2. The combination with the inclined feeding-chute of a metal-dressing machine, of gates located at different portions of said chute, means by which the lower gate is timed to open and close while the upper gate remains closed, then the upper gate to open and close while the lower gate remains closed, and then the lower gate to open and close while the upper gate remains closed, and so on indefinitely, and a device for controlling the feed of the lower column of bolts during the opening of the lower gate.

3. The combination of a bolt-carrier wheel having peripheral notches, a feeding-chute containing bolts which are free to slide by gravity alone entirely from said chute and to said notches, a gate acting to stop said bolts

at the lower end of said chute, a stop 54^D above said wheel and so located and shaped as to maintain the heads of the bolts at predetermined angles relatively to said wheel, and said chute holding the heads at predetermined angles relatively to said stop, a guide 54 having arc-shaped surfaces C, one of which is a continuation of the face of the stop 54^D, a supplementary gate dividing the upper bolts from the lower bolts, a rotating shaft, and tripping-fingers controlled by said shaft and adapted to open said gates alternately, and retractile springs for closing said gates.

4. The combination with the inclined feeding-chute of a metal-dressing machine, of a carrier located at the exit of said chute, a stop at the distance of the head of one bolt away from said exit, a gate standing below the shank of the lowest bolt for holding a group of bolts in said chute, a second gate higher up on the chute, and normally inserted between the top bolt of said group and below the shank of the lowest bolt of the second group the lower gate opening whereby the lower group slides by gravity against said stop and comes to rest, said carrier being rotary to take the liberated bolt away from its position opposite said exit, said lower gate closing again before the carrier removes the liberated bolt, the upper gate opening and allowing the upper group to slide down by gravity, and coming to rest against the lower group and then closing above the lowest bolt of said upper group.

Signed this 26th day of August, 1901.

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Witnesses:

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