A. R. FEISTEL.

MACHINE FOR MAKING SHOVEL HANDLES.

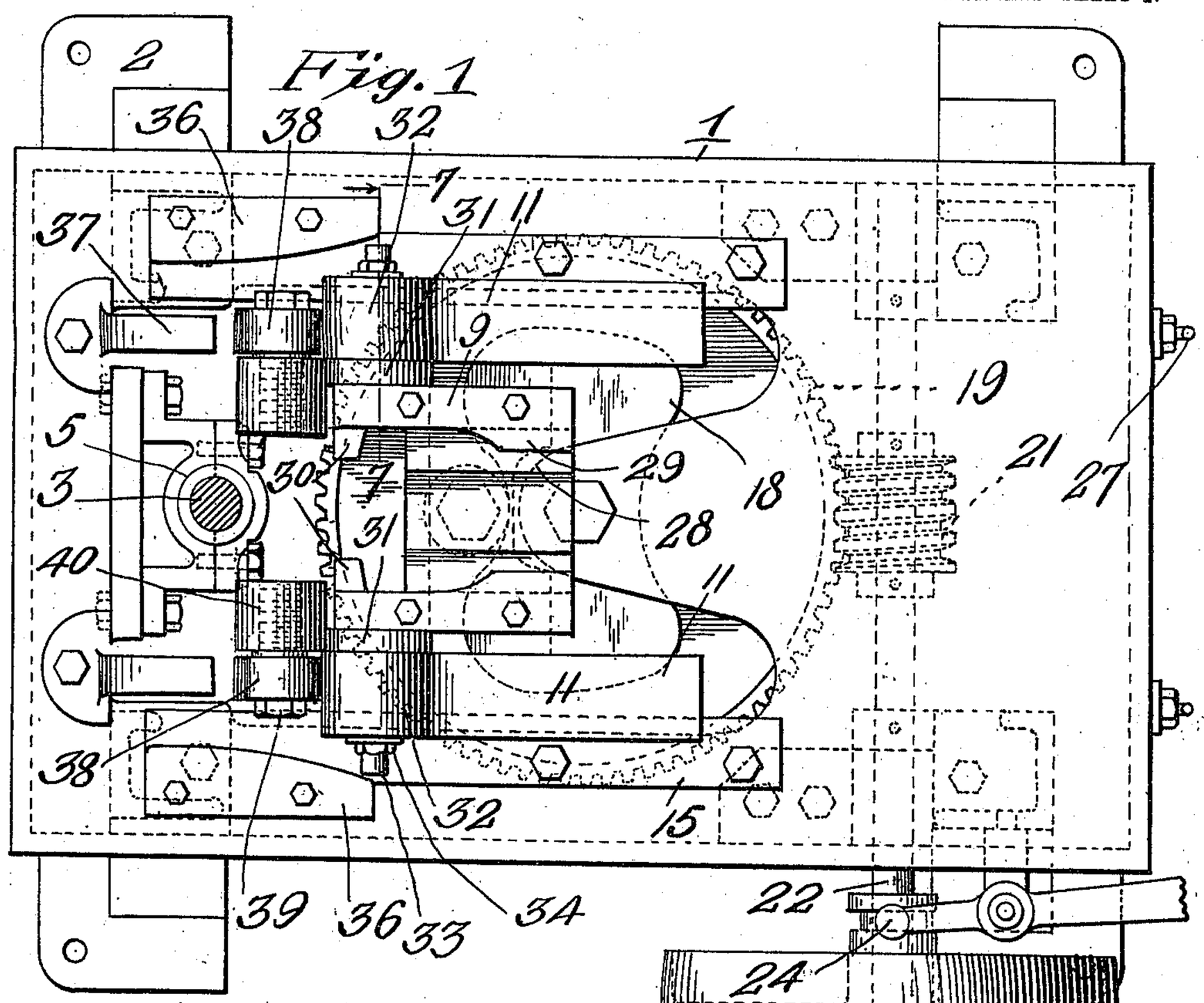
APPLICATION FILED SEPT. 11, 1909.

964,008.

Patented July 12, 1910.

2 SHEETS—SHEET 1.

Fig. 1



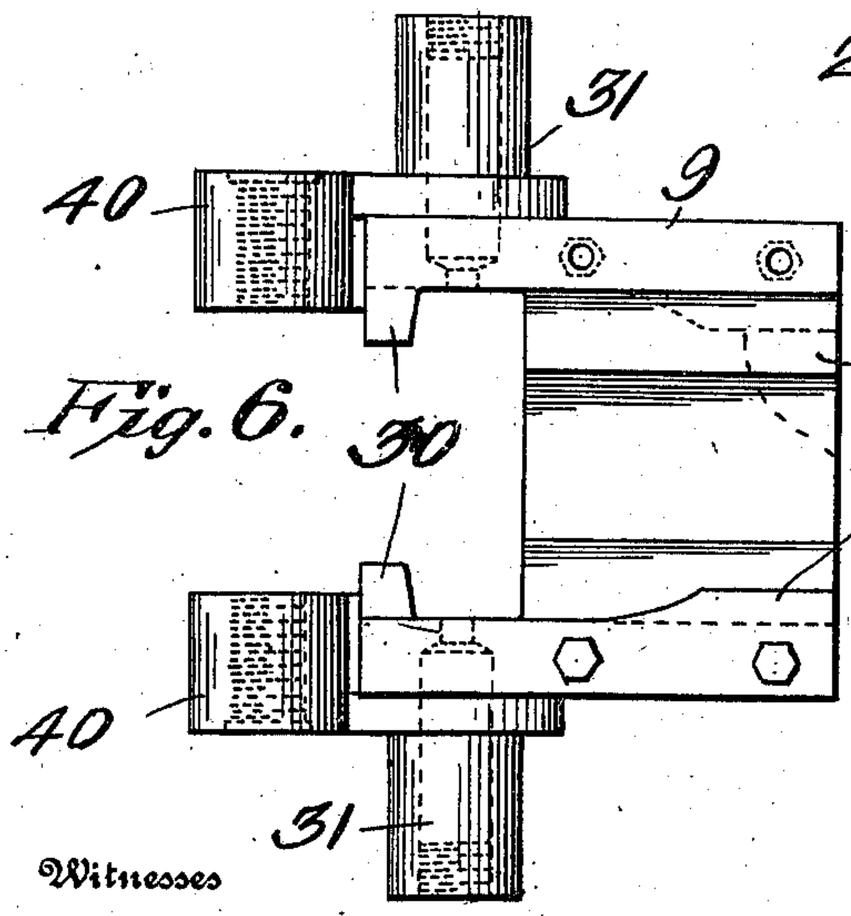


Fig. 6.

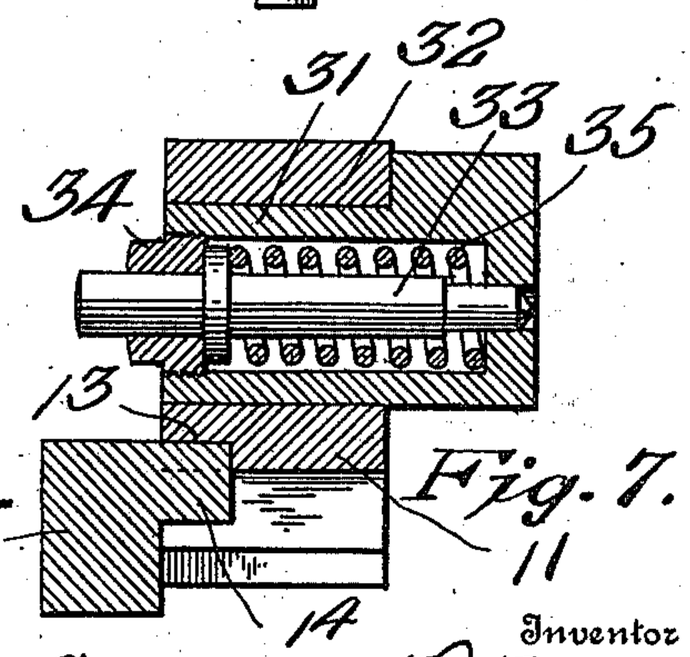


Fig. 7.

Witnesses

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2 SHEETS—SHEET 2.

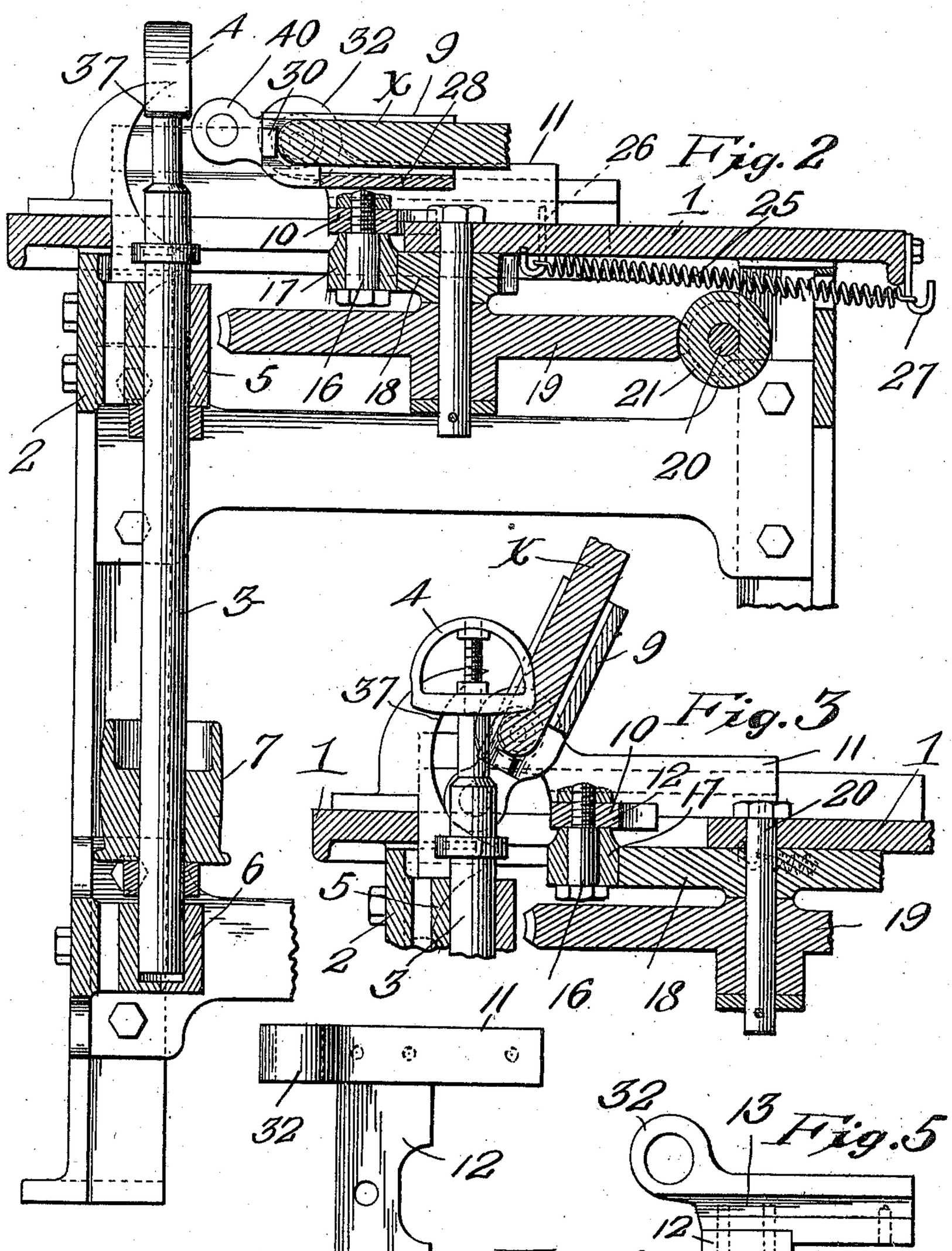

Fig. 2

Fig. 3

Fig. 5

Fig. 4.

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UNITED STATES PATENT OFFICE.

AUGUSTUS R. FEISTEL, OF YORK, PENNSYLVANIA.

MACHINE FOR MAKING SHOVEL-HANDLES.

964,008. Specification of Letters Patent. **Patented July 12, 1910.**

Application filed September 11, 1909. Serial No. 517,217.

To all whom it may concern:

Be it known that I, AUGUSTUS R. FEISTEL, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Making Shovel-Handles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in machines for making shovel handles and more particularly the machine set forth in my former Patent #661,400, dated November 6, 1900.

The object of the present invention is to improve and simplify the construction and operation of machines of this character and thereby render them more efficient.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved machine; Fig. 2 is a detail vertical section; Fig. 3 is a similar detail section showing the shovel blank holder tilted; Figs. 4 and 5 are, respectively, top and side views of the sliding carriage or carrier; Fig. 6 is a plan view of the blank holder; and Fig. 7 is a detail vertical section taken on the plane indicated by the line 7—7 in Fig. 1.

In the drawings 1 denotes a bed forming the top of a supporting frame or stand 2 and having adjacent one end a vertical opening through which projects the upright shaft 3 of a rotary cutter or cutter head 4. The shaft 3 is mounted in suitable upper and lower bearings 5, 6 and carries a pulley 7 for a suitable driving band. While the cutter 4 may be of any suitable form and construction, the one illustrated is in the form of a substantially semi-circular loop, as shown in Fig. 3, its edges being beveled to provide cutting edges.

The shovel blank X is placed in a vertically tilting blank holder 9 pivoted on a horizontally sliding carriage or carrier 10. The latter, as shown more clearly in Figs. 4 and 5, consists of two side bars 11 united by a cross bar 12 and having their outer faces grooved, as at 13, to receive guide flanges 14 on parallel plates 15 secured to the bed 1 on opposite sides of its opening. The cross bar 12 of the carriage has depending from its center a pin 16 preferably in the form of a stud bolt carrying an anti-friction roller 17 which is engaged and actuated by a double cam 18. The latter is fixed to a worm gear 19 rotatable on a stub shaft 20 depending from the central part of the bed 1. The worm gear 19 meshes with a worm 21 fixed to a transverse driving shaft 22 journaled in suitable bearings on the frame 2. A pulley 23 adapted to receive a driving belt is provided on one end of the shaft 22 and adapted to be locked thereto for rotation therewith by a suitable clutch controlled by a lever 24, as shown in Fig. 1. It will be seen that when the shaft 22 is rotated the worm gearing will rotate the cam 18 and the latter will in turn move the carriage 10 in one direction. Coil springs 25 are provided for moving the carriage in the opposite direction, said springs having their inner ends attached to the side bars 11 of the carriage at 26 and their outer ends engaged with hooks 27 on the bed 1.

The blank holder 9, as shown more clearly in Fig. 6, comprises a body channeled longitudinally, as shown at 28, to receive the shovel blank, the latter being inserted in the holder from its front or outer end and being retained therein against lateral movement by means of retaining plates 29 secured to the outer face of the body of the holder and projecting inwardly over its channeled portion 8. Lugs 30 are formed on the channeled side portions of the body of the holder to limit the inward movement of the shovel blank in the holder and formed at adjacent points on the holder are outwardly projecting trunnions 31 which rotate in bearing ears 32 formed on the ends of the side bars 11 of the carriage.

The trunnions 31 are hollow to receive spring retracted locking pins 33, the pointed inner ends of which are adapted to be forced into the shovel hand blank to retain the same in the holder during the cutting operation. The pins 33, as shown in Fig. 7, have their outer ends slidable in hollow nuts 34 threaded in the outer ends of the hollow trunnions 31 and surrounding the inner portions of the pins are coil springs 35 which tend to retract them. Cam plates 36 are secured to the guide plates 15 for forcing the pins 33 inwardly as the carriage is moved toward the cutter.

The blank holder 9 is automatically tilted by means of a pair of cams 37 secured to the

bed 1 and adapted to be engaged by anti-friction rollers 38 carried by pins 39 in the form of screws or bolts arranged in projections 40 on the pivoted end of the blank holder 9. It will be seen that as the carriage is moved toward the cutter the rollers 38 will engage the cams 37 so that the blank holder will be tilted on its trunnions 31, as shown in Fig. 3.

In operation, when the parts are in the position shown in Figs. 1 and 2, the shovel blank X is inserted in the open end of the holder 9 until its curved extremity engages the stop lugs 30. The carriage may then be started on its movement toward the constantly rotating cutter 4 by operating the clutch lever 24 to lock the pulley 23 to the driving shaft 22. When the rotating pulley 23 is thus locked to the drive shaft the worm gearing 19, 21 will cause the cam 18 to move the carriage toward the cutter, whereupon the cams 36 force the locking pins 33 inwardly to tightly grip the blank X. The continued movement of the carriage in the same direction brings the rollers 38 against the cams 37 so that the holder 9 is tilted and the blank X is brought against the cutter 4, as shown in Fig. 3. It will be noted that the cam 18 has two oppositely disposed enlarged portions so that after one of such portions has moved the carriage forwardly the springs 25 will retract the carriage until it is again projected by the other enlarged portion of the cam. When the carriage is thus retracted the blank holder 9 drops by reason of its own weight and the weight of the blank to its normal horizontal position whereupon the blank is removed from the holder and reversed or turned over and again inserted in the holder, it being understood that the spring retracted locking pins 33 release the blank as the carriage is retracted.

Having thus described the invention what is claimed is:

In a machine of the character described, the combination of a stand having a bed plate formed with an opening, a vertical stub shaft depending from the bed plate adjacent said opening, a worm gear loose on said stub shaft, a cam on said stub shaft and connected to the worm gear for movement therewith, a driving shaft carrying a worm to mesh with said gear, grooved guide plates secured to the top of the bed adjacent its opening, a reciprocatory carriage consisting of side bars and a connecting cross bar, the side bars being slidably engaged with said guide plates, a pin extending downwardly from the cross bar of the carriage through the opening in the bed plate and carrying a roller to engage said cam, a pair of coil springs having their outer ends anchored to the bed plate, and their inner ends connected to the side bars of the carriage, a rotary cutter, a blank holder pivoted on the carriage, stationary cams upon the bed plate for tilting the blank holder, spring retracted blank clamping pins upon the blank holder, and cams upon the bed for projecting said pins.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

AUGUSTUS R. FEISTEL.

Witnesses:
EDWARD J. LOUCKS,
C. WESLEY MUMMERT.