UNITED STATES PATENT OFFICE.

JOSEPH ARTHUR PACKHEISER, OF PICHER, OKLAHOMA.

ELEVATOR-BELT PUNCH.

1,345,395.


To all whom it may concern:

Be it known that I, Joseph A. Packheiser, a citizen of the United States, residing at Picher, in the county of Ottawa and State of Oklahoma, have invented new and useful Improvements in Elevator-Belt Punches, of which the following is a specification.

This invention has reference to a device for making holes in rubber and canvas belts or the like.

An object of the invention is to arrange upon a suitable frame a combined reciprocatory and rotary bit having means whereby the same may be easily, quickly and accurately fed to its work and which will operate on the work in an easy and positive manner. The foregoing objects, and others which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and operative arrangement of parts such as is illustrated by the accompanying drawings, it being understood, however, that the nature of the device renders the same susceptible to changes in size, proportion and details of construction, all of such changes, however, falling within the scope of what is claimed.

In the drawings:

Figure 1 is a side elevation of the improvement.
Fig. 2 is a front elevation thereof.
Fig. 3 is a sectional view approximately on the line 3-3 of Fig. 1.
Fig. 4 is a sectional view approximately on the line 4-4 of Fig. 2.
Fig. 5 is a detail view of the screw member carrying the beveled pinion.
Fig. 6 is a detail view of the sleeve or chuck.
Fig. 7 is a detail view of the bit or die.
Fig. 8 is a plan view of the head portion of the operating lever.

As disclosed by the drawings I make use of a frame which is indicated by the numeral 10. The frame is approximately centrally slotted from one of the ends thereof for the major portion of its length, thus providing an anvil arm 11 and an overlaying arm 12 which is parallel but spaced from the anvil arm 11. The overlaying arm has its outer end extended a suitable distance from the body of the frame proper, and this end is provided with a round opening in which the bit or die 13 plays.

The bit or die 13 has its body portion round in cross section and is provided with an opening or bore 14 from its cutting edge 15, the said bore terminating a suitable distance from the opposite end of the bit or die, and the body of the die is provided with an opening 16 that communicates with the bore 14. The body of the bit 13 has its end opposite its cutting end provided with an offset shoulder 17, the purpose of which will presently be apparent.

On the upper and outer end of the frame 10 is secured a boxing 18 that has a threaded opening 19 therethrough which alines with the opening in the overlying arm 12 of the frame. The opening 19 in the boxing is threaded, the said threads co-engaging with exterior threads 20 on a combined reciprocatory and rotary shaft 21. The lower end of the shaft 21 is provided with a reduced threaded extension 22, and the threads of this extension are designed to be engaged by interior threads 23 on the upper end of a sleeve that provides a chuck member 24. The sleeve or chuck, inward of the threads 23 is formed with a longitudinally arranged slot or notch 25 which is designed to receive therein the shoulder 17 on the bit 13. The bit 13 is first inserted through the chuck sleeve 24 from the threaded end thereof and when the shoulder 17 is received in the notch 25 an interlocking engagement between the members 13 and 24 is obtained. The chuck sleeve is then threaded on the extension 22 of the shaft 21.

On the end of the shaft 21, opposite that provided with the reduced threaded extension 22 is keyed a beveled tooth wheel 26, and outward of the said toothed wheels the shaft 21 is provided with a reduced extension in the nature of a cross sectionally round spindle 27. This spindle 27 finds a bearing in a round opening 28 arranged centrally of a bracket member 29 that is secured to the frame 10. The bracket is provided with extensions or arms on the opposite sides thereof which project upwardly and which are designated by the numerals 30, the said arms 30 having registering openings receiving therethrough a shaft or pin 31 that preferably has its opposite ends threaded and the said threaded ends engaged by nuts 32.

The numeral 33 designates the operating lever. This lever has its lower or outer end provided with a segmental head 34. The head, upon what may be termed the inner
face thereof has a row of teeth 35 extending inwardly from the periphery of the head, and these teeth are designed to mesh with the toothed pinion 26. It will be apparent that the pinion 26 being keyed to the shaft 21 will be raised and lowered as the shaft, incident to the co-engaging threads 20 thereon and the threads in the boxing 18, and consequently the head 34 is provided with an opening arranged eccentric with respect to the toothed periphery of the said head and through this opening the pin 31 passes. On the pin may be arranged sleeves to hold the lever 33 against lateral movement with respect to the device, and the eccentric pivotal connection of the lever with the bracket permits of the teeth 35 at all times engaging with the teeth of the pinion 26.

The operation of the device will, it is thought, be perfectly apparent to those skilled in the art to which such inventions appertain. The lever when swung in one direction will impart a combined rotary and longitudinal movement to the bit in one direction of its work. The action of the bit on the work is by direct downward pressure and by rotary shearing or cutting movement, so that holes may be made in belts of either leather or fiber in an easy, quick and accurate manner. The lever when swung in an opposite direction will raise the bit. It is, of course, obvious that bits of various sizes may be employed, but in all instances it is necessary to remove the chuck sleeve 24 from the shaft 21 before the bit can be inserted in the said sleeve or removed therefrom.

Having thus described the invention, what is claimed as new, is:

1. In a belt punch, a frame including an anvil arm and an upper arm overlying the anvil arm, a threaded boxing carried by the upper arm, a threaded shaft engaging said boxing, a bit guided through an opening in said arm, a chuck sleeve having a locking engagement with the bit and removable connected to the lower end of the shaft, and means for imparting motion to the shaft whereby a simultaneous rotary and longitudinal movement is imparted to the bit.

2. In a belt punch, a frame including an anvil arm and an arm overlying the anvil arm and disposed parallel thereto, a boxing having interior threads on the upper arm, a threaded shaft engaging the threads in the boxing, a bit guided through an opening in the said arm, a chuck sleeve having a locking engagement with the bit removable secured to the lower end of the shaft, guide means for the upper end of the shaft, a pinion secured to the upper end of the shaft, an operating lever pivotally connected to the frame having a segmental headed portion which is provided with teeth arranged eccentrically with respect to the pivot which teeth engage with the pinion and by virtue of the arrangement thereon with respect to the pivot continue in meshing engagement with the pinion when the shaft is raised or lowered with the pinion and a combined reciprocatory and rotary movement imparted to the bit.

In testimony whereof I affix my signature.

JOSEPH ARTHUR PACKHEISER.