

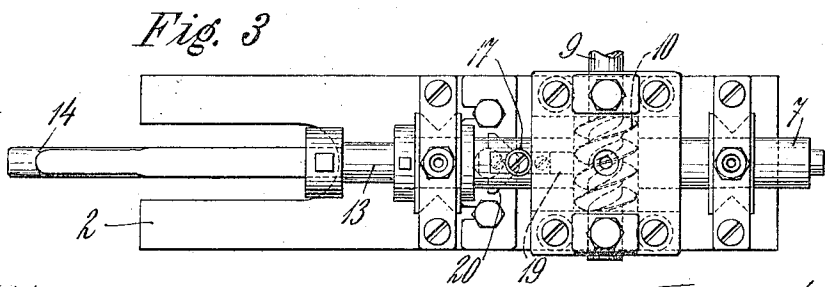
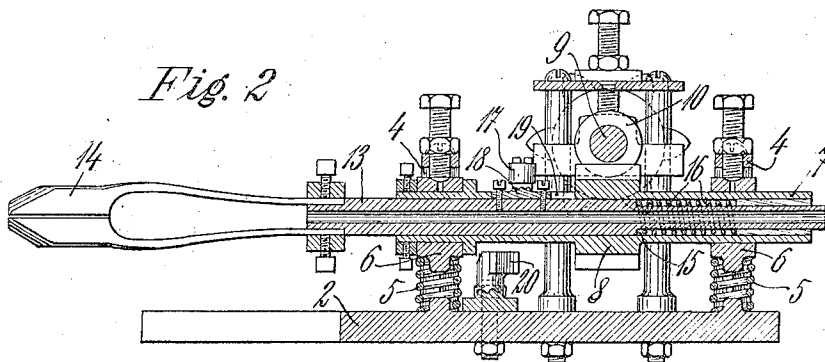
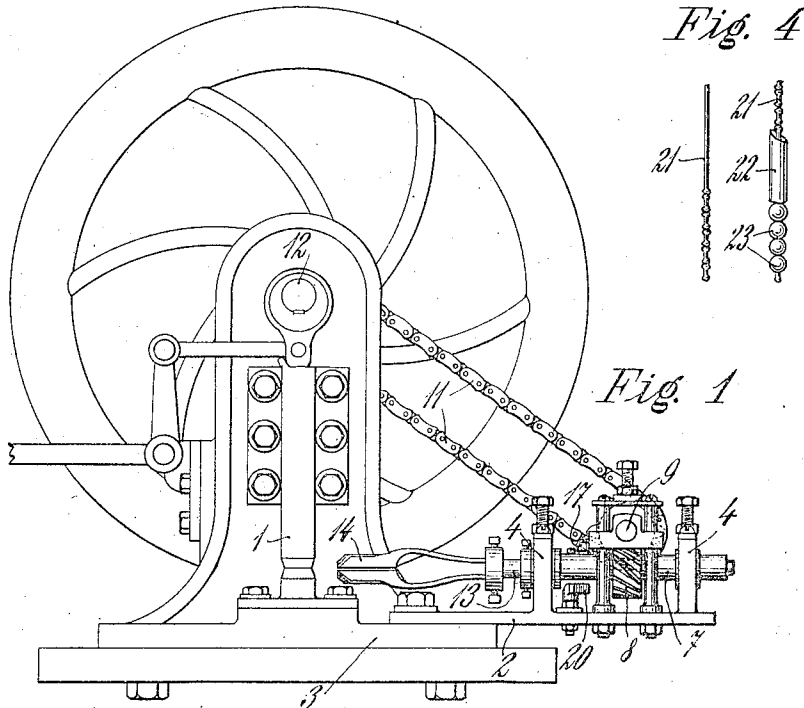
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WORK HOLDER FOR MACHINES FOR STRIKING CHAINS OF BEADS, BALLS, AND THE LIKE.

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To all whom it may concern:

Be it known that I, JULIUS SOCHOR, engineer, a subject of the Austro-Hungarian Emperor, and residing at Frohsdorf, near Wiener-Neustadt, Lower Austria, Austria-Hungary, have invented certain new and useful Improvements in Work-Holders for Machines for Striking Chains of Beads, Balls, and the Like, of which the following is a specification.

The machines employed for striking bead or ball chains, as known to me, do not meet the requirements of practice fully with regard to the construction of the work holder. Thus for instance, the method of driving the work holder by means of bevel gears has this disadvantage, that when the horizontal driven or work shaft has to be readjusted in a vertical direction, the bevel gears are brought out of proper engagement, so that the ratio of the gearing is changed. Furthermore, the coupling of the horizontal driven or work shaft of the work holder with the hollow rod penetrating this shaft and carrying the elastic tongs for holding the work, by means of a toothed clutch is by no means perfect, as is the case with the automatic feed of the positively displaced tongs by means of a carriage guided on the lower side of the baseplate of the work holder and under action of a spring, the said slide engaging with an upright projection with a disk fitted to the displaceable rod. It may thus occur, that when the work holder is fed a longer distance than ordinarily, for instance for making chains with oblong members, the teeth of the clutch will work out of engagement, so that the work is suddenly no more advanced toward the striking mechanism of the machine. The exposed arrangement of the elastic carriage will cause damage to the latter and also to the spring very easily, whereby the perfect working of the machine is rendered uncertain. These disadvantages are effectively avoided with the work holder according to the present invention by causing first, that the drive of the work holder is effected by spiral or worm wheels, so that the horizontal driving shaft of the work holder may be vertically adjusted without impairing the proper meshing of the wheels. Then the spring effecting the feed motion of the work is arranged within the hollow driving shaft and acts directly on the displaceable

hollow rod passing through the same and carrying the elastic tongs for holding the work, so that damages to the spring will be avoided. Lastly the lug which strikes against a fixed abutment when the work holder is revolved, and produces a displacement of the work holder against the action of a spring, is arranged directly on the hollow rod, and projects outwardly through an axial slot in the hollow driving shaft of the work holder, so that this lug will effect the coupling of the driving shaft to the hollow rod.

In the accompanying drawing the present invention is exemplified in a constructional form.

In said drawing Figure 1 shows the arrangement of the work holder on the machine, Figs. 2 and 3 show the work holder in central longitudinal section and plan respectively, and Fig. 4 illustrates the work employed for making the chains.

At the one side of the striking device 1 of the machine is secured the work holder by means of its plate 2 fastened to the machine body 3. The hollow driven or working shaft 7 is journaled in the bearings 6 supported by springs 5 on two vertical brackets 4 of the base plate 2, this shaft 7 carries a worm wheel 8, in which engages a worm 10 on the transverse shaft 9, the said worm being driven from the shaft 12 by means of a chain 11. Both the driving shaft 7 and the transverse shaft 9 are vertically adjustable in order to allow of bringing the longitudinal axis of the shaft 7 into perfect alinement with the level of the die of the striking device. Owing to the worm gears the engagement between the two shafts remains the same, even after the shafts have been adjusted. The driving shaft 7 is penetrated by the hollow bar 13, which carries at the end turned toward the striking mechanism the elastic tongs 14 of known design for holding the work, while at the opposite end it is reduced and a shoulder 15 is formed, against which the spring 16 bears, while a sleeve 16' is fitted between the shaft 7 and the hollow rod 13 and serves as the other abutment of the said spring. The spring 16 forces the hollow bar 13 together with the tongs 14 toward the striking device up to a given terminal position. On the hollow bar 13 is secured by means of the plate 18 a radially disposed

roller 17 between the wormwheel 8 and the inner bracket 4. The plate 18 is guided in an axial slot 19 in the driving shaft 7, and determines the inner terminal position of the tongs 14 by abutting against the corresponding end of the slot 19. The longitudinal sides of the slot 19 will also dog the plate 18 of the roller 19 when the shaft 7 revolves, so that the rotation is also transmitted to the hollow rod 13 and the tongs 14. The roller 17 will meet a wedge shaped abutment 20 secured to the base-plate 2, whereby the hollow rod 13 is longitudinally displaced against the action of spring 16. After the roller 17 has slipped from the abutment 20, the spring 16 will return the rod 13 into its initial position.

The operation in making a chain of beads is a well known one and briefly described is as follows: The work holder is driven from the machine shaft at a ratio of 1:3. Through the bore of the rod 13 is passed a wire which is held by tongs 14 in such a manner, that it must rotate therewith. In the die of the striking device 1 the wire is stamped with small beads (Fig. 4) the feed being effected by the displacement of tongs 14 in such a manner that when the striking device moves down the third time the tongs is removed backwardly from the die by the action of the roller 17 and abutment 20 while the spring 16 is tightened. The tongs are guided over the wire held in the die, which is again released when the tongs are subsequently automatically released on the wire and advanced toward the striking device 1 as the latter moves upward, and therefore advanced by the tongs a corresponding distance. When the wire has been finished according to Fig. 4, it is introduced into a metallic tube 22, and with the latter it enters into a striking device having suitably shaped dies, in which the tube is formed into beads 23 and the wire is severed at the point where two beads of the wire meet, whereby the movability of the chain members relatively to each other is obtained.

By varying the rate of the feed of the work beads of different sizes and also oblong chain members may be produced. For such purpose only a suitably sized roller need be substituted for the roller 17, what is readily carried out.

By the abutment 20 having two bevels, it is rendered possible, that the machine may be driven in both directions.

I claim—

1. A work holder for stamping machines, comprising in combination, a hollow work-

shaft, a tubular bar longitudinally movable in said work-shaft, a tongs carried by said tubular shaft, means for normally holding said bar and tongs in advanced position, means for driving said hollow shaft, and means for reciprocating said tubular bar in said shaft against the action of said holding means.

2. A work holder for stamping machines, comprising in combination, a hollow work-shaft, a tubular bar longitudinally movable in said work-shaft, a tongs carried by said tubular bar, a spring within said shaft bearing between said tubular bar and an abutment of said shaft, means for driving said bar rearwardly in said shaft against the action of said spring.

3. A work holder for stamping machines, comprising in combination, a hollow work-shaft, a tubular bar longitudinally slidable in said hollow shaft, spring means in said shaft for normally holding said bar in advanced position, a tongs carried by said bar, a plate carried by said bar and slidable in a slot in said hollow shaft, a roller carried by said plate, means for driving said shaft, and a cam element against which said roller is adapted to wipe to reciprocate said bar against the action of said spring means.

4. A work holder for stamping machines, comprising in combination, a hollow work-shaft, a tubular bar longitudinally movable in said shaft, a spring means in said shaft for normally holding said bar in advanced position, a tongs carried by said bar, a striking means carried by said bar and projecting through a longitudinal slot in said shaft, means against which said striking means is adapted to operate to reciprocate said bar in said shaft against the action of said spring means, a worm gear carried by said hollow shaft and a worm for driving said worm gear.

5. A work holder for stamping machines, comprising in combination, a hollow work-shaft, a tubular bar longitudinally movable in said work-shaft, a tongs carried by said tubular shaft, means for normally holding said bar in advanced position in said shaft, means for driving said hollow shaft, means for reciprocating said tubular bar in said shaft against the action of said holding means, and means for vertically adjusting said driving means and said work-shaft.

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

JULIUS SOCHOR.

Witnesses:

ALFRED KLOSS,

AUGUST FUGGER.