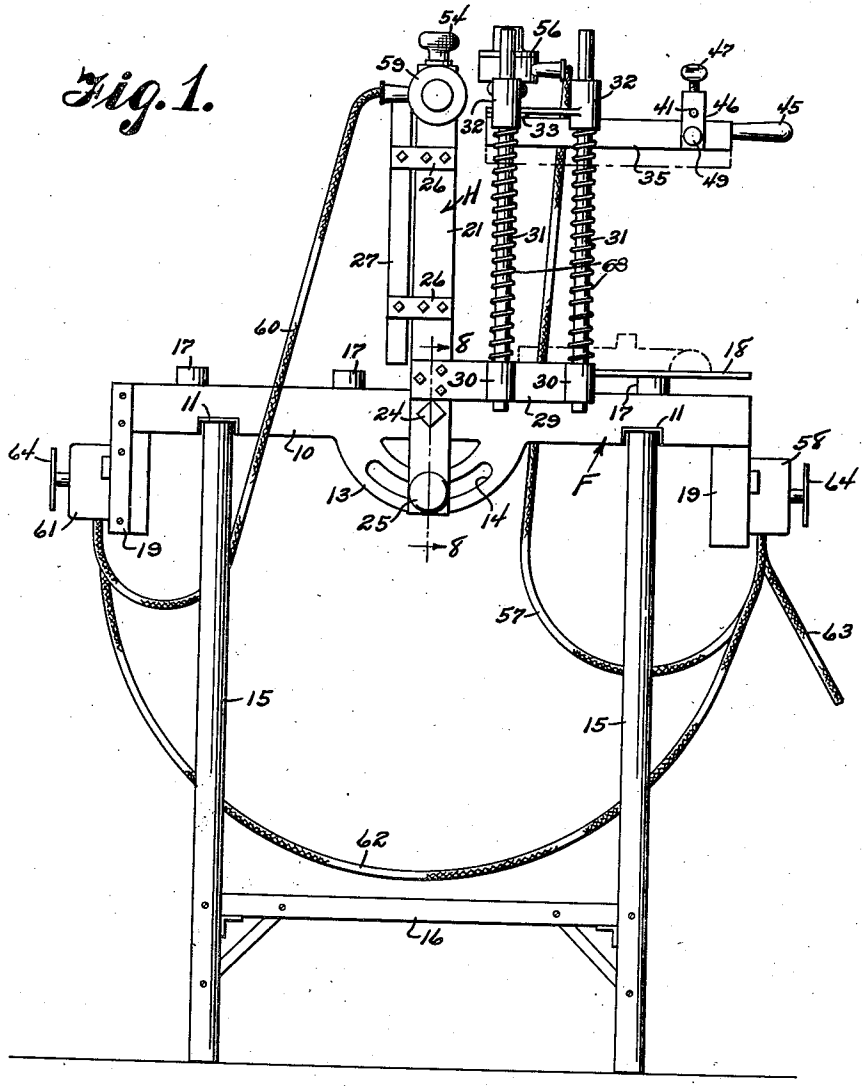
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CORE MACHINE

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Fig. 1.



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CORE MACHINE

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Fig. 2.

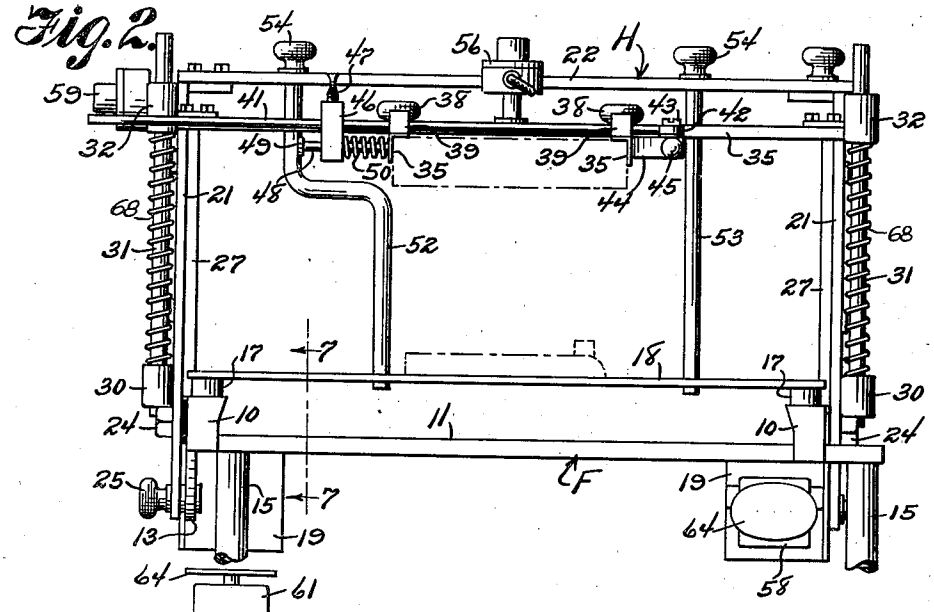
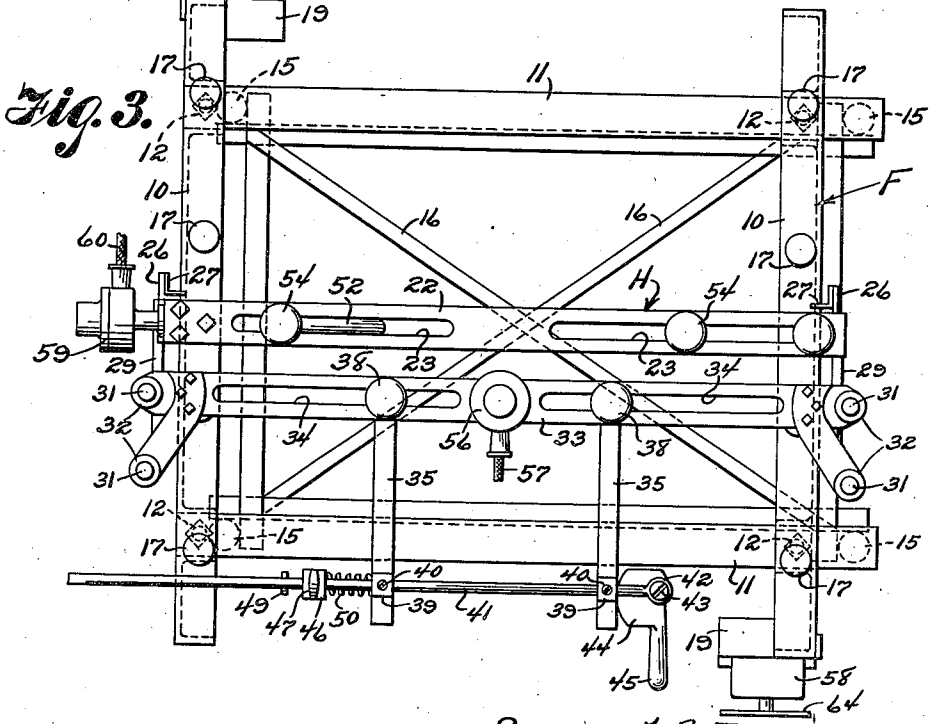


Fig. 3.



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Fig. 4.

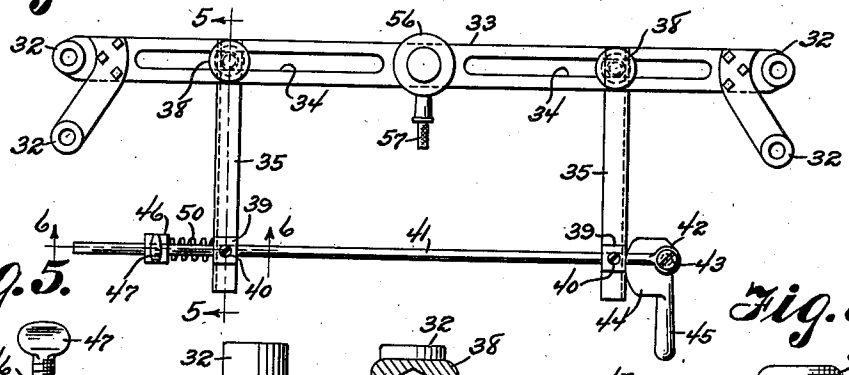


Fig. 5.

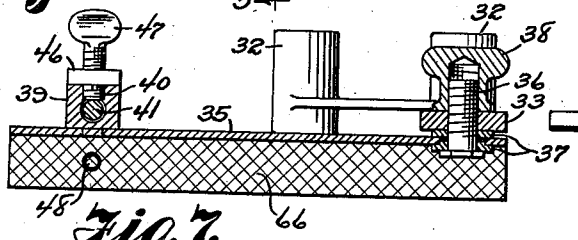


Fig. 6.

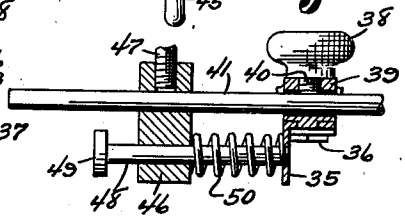


Fig. 7.

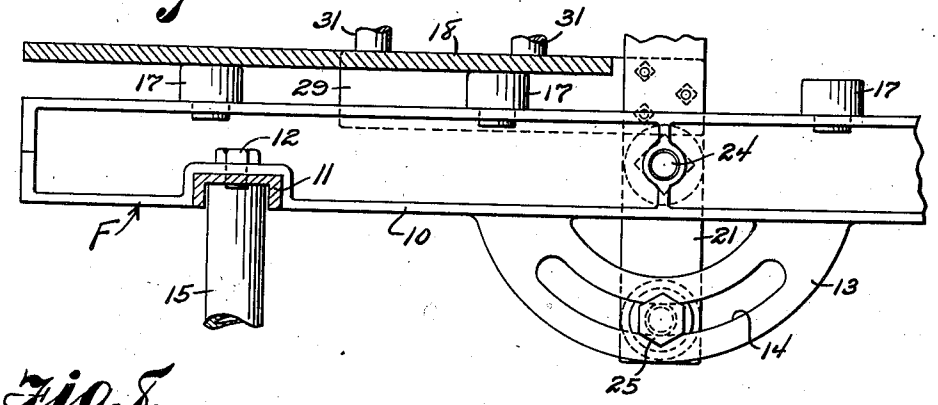
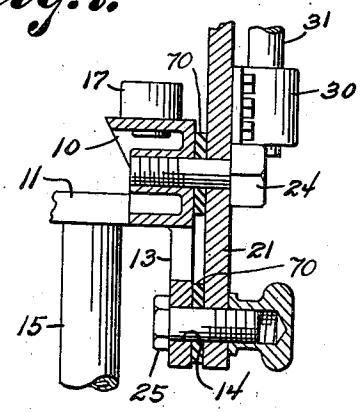


Fig. 8.



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UNITED STATES PATENT OFFICE

2,278,190

CORE MACHINE

Samuel A. Bodi, Monroe, Mich.

Application October 7, 1940, Serial No. 360,170

2 Claims. (Cl. 22—10)

The present invention relates to improvements in core machines.

A primary object of the invention is to provide a core machine which is designed to facilitate the release of cores and the like.

Another object of the invention is the provision of a core machine designed so that rapping or jolting of the core box in the customary manner, to release the core, is rendered unnecessary.

A further object of the invention is the provision of a core machine equipped with novel and improved clamping means.

Still another object of the invention is the provision of a core machine of the aforesaid character in which release of the core is effected by vibration.

A still further object of the invention is the provision of a core machine of the above character having tiltable core box holding mechanism.

Still another object of the invention is the provision of a core machine of the aforesaid character, which is relatively simple and compact in construction and reliable in operation.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate corresponding parts throughout:

Figure 1 is a side elevation of the assembled machine,

Figure 2 is a front elevation of the upper portion of the machine,

Figure 3 is a top plan view of the same,

Figure 4 is a detailed top plan view of the clamping mechanism,

Figure 5 is an enlarged section taken on line 5—5 of Figure 4,

Figure 6 is a similar section taken on line 6—6 of Figure 4,

Figure 7 is an enlarged fragmentary section taken on line 7—7 of Figure 2, and

Figure 8 is an enlarged transverse section taken on line 8—8 of Figure 1.

Referring to the drawings, wherein is illustrated a preferred example of the invention, F generally designates a skeleton table frame embodying a pair of channel-shaped side bars 10 shaped to provide bottom recesses in which are fitted cross channels 11 fastened to the flange structure of the side bars by screws 12 or like fastening elements. Each of the side bars 10 is formed to provide a segmental downwardly bowed bracket section 13 provided with an arcuate slot 14.

This table frame is firmly supported on vertical legs or standards 15 having their lower portions braced by horizontal bracing bars 16 fastened thereto. At spaced intervals on the side bars 10 are mounted support blocks 17 of material tending to reduce vibration, such as rubber, and adapted to support thereon flat plate sections 18. To one end of each side frame bar 10 is attached a depending bracket 19, these brackets being disposed at diagonally opposed positions as shown to advantage at Figure 3.

Pivotally connected with and extending above the table frame is a U-shaped head member H composed of side arms 21 connected to a cross bar 22, which latter is provided with longitudinal slots 23 at each side of its center point. The side arms 21 are connected to medial portions of the side bars 10 by pivot bolts 24, the free ends of these arms being extended beyond the pivot connections and carrying locking screws 25 having the shanks extended through the respective slots 14 and cooperatively associated with compressible nut and washer elements for releasably fastening these free ends of the arms to the segments 13. At the side of each arm 21 is secured, by cross straps 26, a brace bar 27.

Secured to each head arm 21 adjacent the pivot connection is a right angularly extending bar 29 formed with a pair of spaced sockets 30 in which are fixed a pair of parallel guide rods 31. On these transversely opposed pairs of rods are slidably fitted sleeves 32 formed at the ends of a cross bar 33 provided with slots 34. To the opposed slotted portion at each side of the cross bar is connected a longitudinally extending angle bar 35 slidably attached to the bar 33 by a screw 36 associated with washers 37 and a nut 38 providing a releasable holder connection. The angle bars 35 are mounted so that one flange is parallel with the bar 33 while the opposed flange is disposed outwardly toward the ends of the cross bar. On the outer end portion of each angle 35 is fastened an apertured pivot block 39 having a threaded bore intersecting the through slide bore to accommodate a lock screw 40, as illustrated at Figure 5. A rod 41 extends through the slide bores of these blocks and is formed at one end with an eye 42 through which is extended a pivot screw 43 engaging a cam 44. This cam is preferably provided with a laterally projecting handle 45 and is designed so that the edge portion contacting with one of the angle bars 35 provides an angular cam periphery of substantial variance

relative to the pivot axis. On the opposite portion of the rod 41 is fitted an axially slidable stop block 46 having a through bore designed to slidably accommodate the rod and a right angular screw-threaded bore adapted to receive a set screw 47, for fastening the block 46 in predetermined position on the rod. Through a lower transverse bore in the block 46 is extended a guide pin 48 having the inner end fastened to the outer flange of one of the angle bars 35 and having a head 49 on its outer extremity. Between the block 46 and the adjacent angle bar on the pin 48 is mounted a compressible coil spring 50.

Depending from the slotted portions of the transverse head bar 22 are a pair of rods 52 and 53 adjustable in the slots 23 through the medium of knobs 54, the lower ends of these rods being disposed to assume coacting relation with the slidable collecting plates 18 so that these plates may be horizontally moved at predetermined intervals to suitably position a succession of cores.

On the cross bar 33 is operatively mounted a vibrator unit 56, which may comprise any of the well-known types of electrical vibrators, connected through a conductor 57 with a conventional electric switch 58. A second similar vibrator 59 is firmly fastened to one end of the head structure H and is electrically connected, through a conductor 60, with an oppositely mounted switch 61. A conductor 62 is connected to the respective switches 58 and 61 while a further conductor 63 connects the switch 58 with a source of electrical current to complete the circuit. The switches diagrammatically illustrated may advantageously be of the stem-projected push button type normally maintaining the circuit open and causing closure thereof when the stem buttons are depressed. It is preferable that the switch control stems be fitted with relatively large flat heads 64 so that they may be conveniently operated by the knee of the operator.

During operation, a core box is fitted between the clamping bars 35, as illustrated at Figure 2, these bars having been adjusted transversely in accordance with the size of the box. The cam 44 is swung from its normal releasing position with the side edge nearest the pivot 43 against the angle bar to a clamping position wherein the handle 45 is swung from a laterally directed to a forwardly directed position, as best shown at Figure 4, moving the cam so that the rounded edge portion removed from the pivot engages the adjacent clamp bar. Such operation of the cam effects inward movement of the block 46 secured on the cam rod 41 and compresses the spring 50 with a result that the outer end portions of the bars 35 are yieldingly compressed to firmly grip the core box and clamp the same on the carrier bar 33. The operator thereafter depresses the cross bar 33 so that it, together with the clamp mechanism and the core box, is depressed, that is, lowered onto the table plate 18, following which operation of the vibrators loosens and subsequently releases the core which is deposited on the plate. In order to insure non-slipping gripping of the core box, it is advantageous that the vertical flanges of the angle bars 35 be equipped with knurled or roughened liner strips 66.

As will be noted at Figures 1 and 2, the clamp carrying cross bar 33 is normally maintained in a retracted arrangement removed from the frame plate 18 and adjacent the outer ends of the guide bars 31 by coil springs 68, which are compressible to readily yield upon the application of pressure by the operator.

When the machine is employed in connection with cores formed in a beveled core box, the superposed carrier is swung either forwardly or rearwardly in accordance with the inclination of the bevel, about the pivots 25, by loosening the pivot nuts and effecting the required adjustment so that the core box can be lowered to deposit the core flat on the receiving plate.

In order to cushion vibration on the frame, washers 70 of rubber or the like may be interposed between the head arms 21 and the side bars 10 as well as the segments 13 at the pivot connections and the screw and nut assemblies forming the releasable locking device 25.

As will be readily evident, the invention herein described provides a compact, durable machine which is not unduly complicated or expensive but which affords efficient means for rapidly and conveniently handling cores with a minimum of injury.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

What is claimed is:

1. In a core machine, a frame having a horizontally supported table section, a core receiving plate supported horizontally on the said table section, a pair of arms pivotally connected to opposed side of the table section for swinging in a vertical plane, a cross bar secured to the upper ends of the said arms for arcuate swinging movement above the core receiving plate, a plurality of guide rods connected with the said side arms and disposed parallel and adjacent thereto, a transversely extending carrier bar slidably connected with the said rods, a core engaging clamp connected to the said carrier bar, a compression spring sleeved about each guide rod yieldingly holding the said carrier bar in an elevated position with relation to the core plate, and elements adjustably connected with the cross bar and engageable with the core plate for horizontally adjusting the latter.

2. In a core machine, a frame having a horizontally supported table section, a core receiving plate supported horizontally on the said table section, a pair of arms pivotally connected to opposed side of the table section for swinging in a vertical plane, a cross bar secured to the upper ends of the said arms for arcuate swinging movement above the core receiving plate, a plurality of guide rods connected with the said side arms and disposed parallel and adjacent thereto, a transversely extending carrier bar slidably connected with the said rods, a core engaging clamp connected to the said carrier bar, a compression spring sleeved about each guide rod yieldingly holding the said carrier bar in an elevated position with relation to the core plate, a straight rod slidably connected with the cross bar and depending therefrom to engage the core plate, and a complementary bar adjustably connected with the cross bar bent so that its lower portion is offset with reference to its upper portion engageable with the core plate for slidably adjusting the latter.

SAMUEL A. BODI.