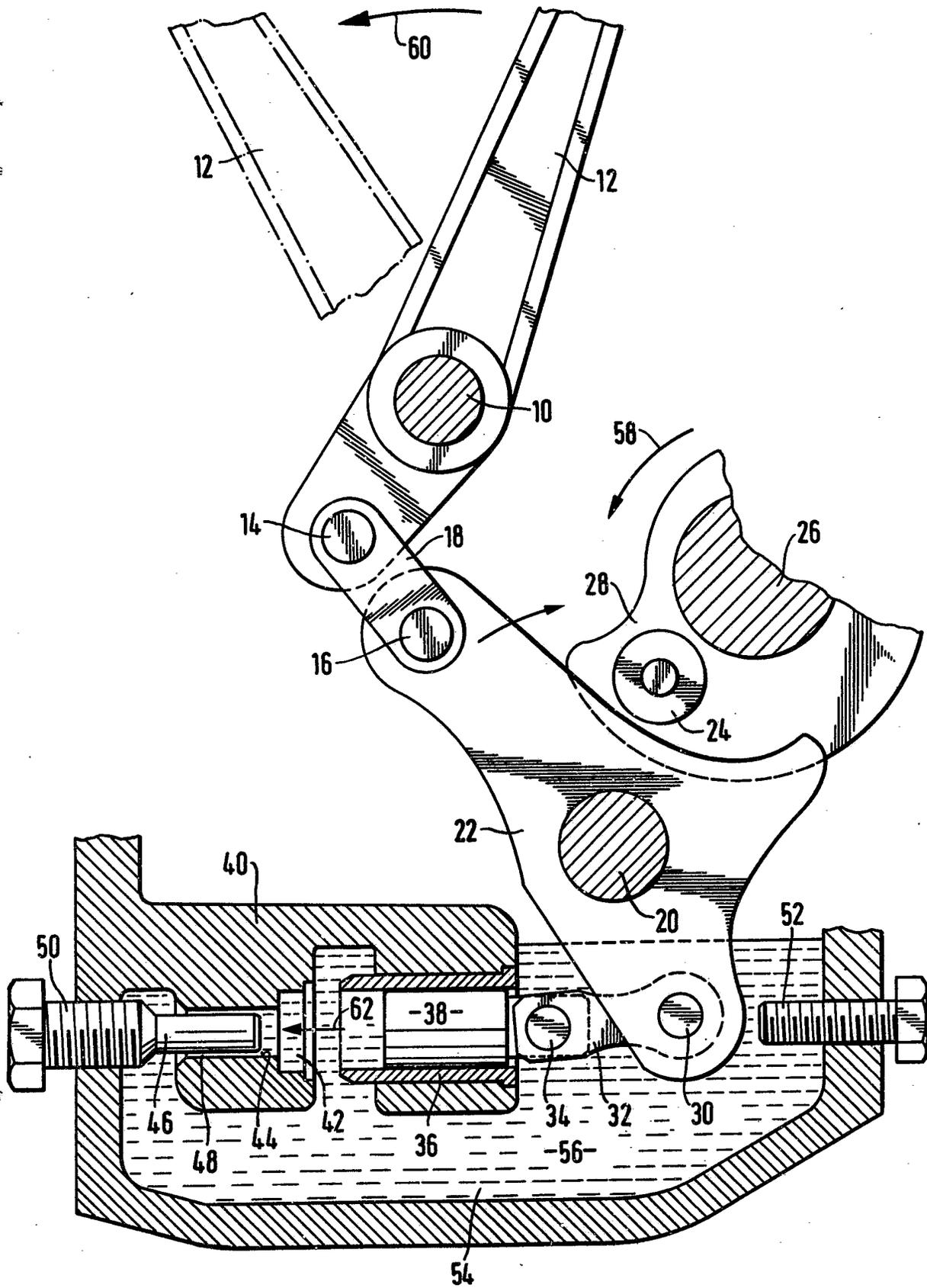


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SPECIFICATION

A brake for an abruptly moving part of a weaving loom employing a projectile for insertion of the weft

5 This invention relates to a brake for an abruptly moving part of a weaving loom employing a projectile for insertion of the weft.

10 In a projectile type of loom, there are several parts which move abruptly and have to be braked.

15 For example, the picking motion is used to accelerate the projectiles for inserting the weft thread into the shed. At high loom speeds, high inertia forces occur in the picking motion lever system. These forces are dissipated via a brake

20 piston which enters and displaces oil from a brake cylinder. Such a brake system is described in Austrian Patent Specification 183 034, in which the oil outlet path containing the annulus is disposed transversely of the longitudinal axis of the piston.

25 A disadvantage of this brake system is that a relatively large space is required between the brake cylinder and the transverse annulus, so that the total oil outlet path is relatively long and contains a large volume of oil. The return flow of such a mass of oil on completion of the brake travel means that it is necessary to limit the acceleration of the brake piston on its return movement on completion of the brake travel, since

30 otherwise there would be a risk of cavitation accompanied not only by impaired brake action but also by damage to the brake system. This brake system is therefore unsuitable for high picking frequencies and picking speeds of the kind occurring particularly in high-speed projectile type

35 looms.

40 According to the present invention, a brake for an abruptly moving part of a weaving loom employing a projectile for insertion of the weft comprises an oil-displacing brake piston guided in a brake cylinder, the oil outlet path comprising an annulus which is substantially coaxial of the brake piston.

45 With this construction, the annulus can be disposed practically immediately adjacent the brake cylinder so that the amount of oil flowing back during the return movement of the brake piston is greatly reduced. The brake piston return acceleration can thus be greatly increased without

50 risk of cavitation. In addition, the coefficient of resistance is reduced as a result of the symmetry of the oil outlet path and the elimination of bends, pockets and sharp edges therein, and this in turn promotes very rapid and substantially cavitation-free return oil flow with minimum heating.

55 Although Austrian Patent Specification 224 030 discloses a brake system for the shuttles of looms, comprising an oil-displacing brake piston guided in a brake cylinder, the oil outlet path is in the form of apertures in a partition. The passage cross-section of these apertures can be reduced by means of a rotatable disc formed with apertures in the same size and arrangement as the partition apertures.

65 A disadvantage of this brake system is that considerable space is required to form the oil outlet path as apertures in a partition and rotating disc, and this entails a relatively large brake cylinder diameter. The result is not only a relatively large and heavy brake piston, but also a large oil volume. The resulting high inertia of the complete moving system allows only low return acceleration of the brake piston and return flow speed of the oil after each brake movement. The said brake system is not suitable for high picking frequencies and picking speeds of the kind occurring in a high-speed projectile type loom.

70 The invention may be carried into practice in various ways but one loom having a brake embodying the invention will now be described by way of example with reference to the accompanying drawing, the single Figure of which shows the basic parts of the picking mechanism of the loom in conjunction with its associated brake

85 system.

90 The loom is of the kind in which the weft thread is inserted by projectiles accelerated by a picking motion which includes a picking lever 12 connected to a torsion rod 10 and a cam follower 22 pivotable about a shaft 20, the connection between lever 12 and the cam follower 22 being by a link 18 secured by pins 14, 16. The cam follower 22 responds to a picking cam 28 carrying a roller 24 and rotatable about a shaft 26, and is also connected by a pin 30, a link 32 and a pin 34 to a brake piston 38 guided in a bush 36. The bush 36 is contained in a housing 40 which also contains a brake cylinder 42 and a passage 44. An axially adjustable pin 46 forms an annulus 48 in the passage 44, the length of the annulus being variable by rotation of the pin which is fitted in the housing 40 by a screwthread 50. A screw 52 provided in the opposite wall of the housing 40 acts as an end stop for the cam follower 22. The cavity 54 of the housing 40 is filled with oil 56.

105 The described brake operates as follows. On rotation of the cam 28 in the direction of the arrow 58, the cam follower 22 causes the torsion rod 10 to rotate, the picking lever 12 performing a picking movement in the direction of the arrow 60 and moving into the position shown in chain-dotted lines. At the same time, the brake piston 38 moves in the direction of arrow 62 towards the brake cylinder 42. Just before the picking lever 12 reaches its end position, the piston 38 enters the oil-filled brake cylinder 42 and displaces the oil therein through the passage 44 and annulus 48 acting as an oil outlet path. The oil resistance in the path 44, 48 can be sensitively controlled by

110 adjusting the length of the annulus 48.

120 A similar brake may be used for other abruptly moving parts of the loom, for example the catching motion.

125 CLAIMS

1. A brake for an abruptly moving part of a weaving loom employing a projectile for insertion of the weft, comprising an oil-displacing brake

piston guided in a brake cylinder, the oil outlet path comprising an annulus which is substantially coaxial of the brake piston.

2. A brake as claimed in Claim 1 in which the
5 said part is a picking lever.

3. A brake for the picking lever of a loom employing a projectile for insertion of the weft, the brake being constructed and arranged to operate substantially as described herein with reference to
10 the accompanying drawing.

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